# Troubleshooting 1


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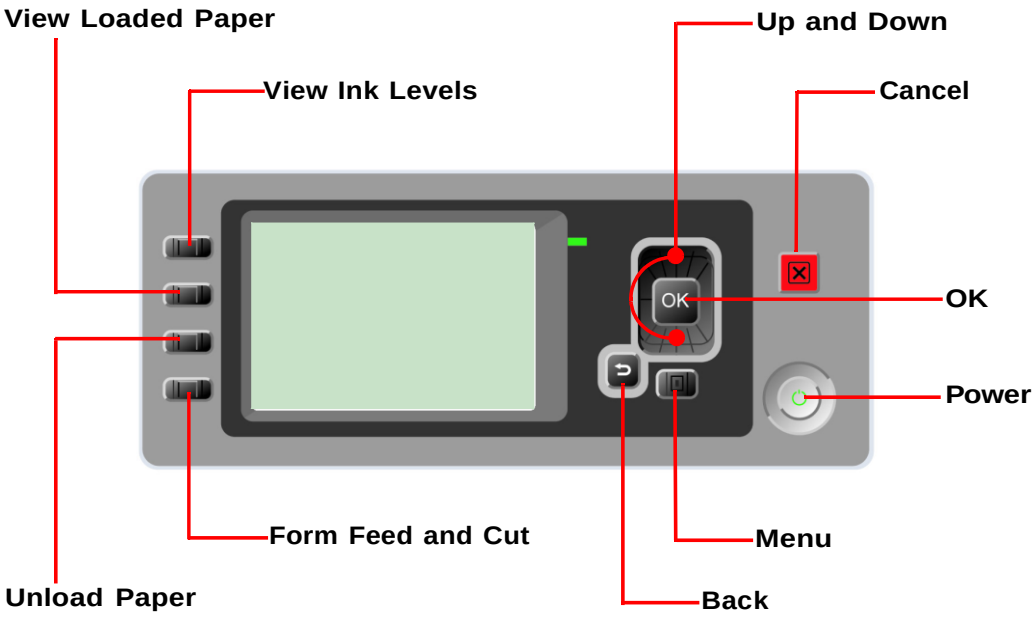
# Using the Front Panel

Below is a diagram of the front panel.




### Key Function

- Arrow Keys
  Use the Arrow keys to scroll through a menu or toggle between YES or NO when prompted.
- Cancel
  Use the Cancel key to abort or stop a procedure or reject test results.
- OK
  Use the OK key to select a menu option.
- Power
  Use the Power key to turn the printer ON and OFF.
- Menu
  Use the Menu key to enter the main menu.
- Back
  Use the Back key to go back to the previous menu or reject test results.

### Service Key Combinations

- Diagnostic mode
  With the printer OFF, press and hold the UP and OK keys. While holding the Up and OK keys down, press and hold the Power key to turn on the printer. Hold all three keys until the Power key stops flashing, usually about 20 seconds.
- Service Menu (Service Engineers Only)
  From the main menu, press and hold the Up and Cancel keys.
- Service Menu (For users)
  From the main menu, press and hold the Down and Cancel keys.

# General Troubleshooting

## Introduction

This chapter will guide you through the relevant steps to take when troubleshooting the printer.

## Troubleshooting System Error Codes

Chapter 2, *System Error Codes* contains a list of system error codes and their respective descriptions and recommended corrective actions. Only try one recommended action at a time and check if the error code has disappeared.

If you have an error code which is not documented in this Service Manual or you have an error which you cannot resolve, then report the error to the HP Response Center or the nearest HP Support Office. When reporting the error, have the following information ready:

- Model and Serial Number of the printer.
- Which firmware revision the printer is using (See Note below). Check firmware in *Utilities* / *Statistics* / *Code rev*.
- The complete error number (See Note below).
- The Service Configuration Print.
- The Current configuration sheet.
- Which software application the customer is using (name, version, etc.).

**When reporting the System Error Code, make sure that you supply the full Error Code and the firmware version. Without this information, HP Support Personnel cannot help you.**

## Performing a Service Test on a failed Assembly

If possible, always perform a Service Test on the component/assembly that you are about to replace, just to make sure that is the component/assembly that has failed.

**If the test on that component/assembly passes, you should NOT replace it.**

For information on the Service Tests and how to use them see Chapter 3, *Service Tests and Utilities*.

## Performing the Necessary Service Calibrations

Is the printer calibrated correctly after replacing a component? For information on the Service Calibrations and how to use them, see *Service Calibration Guide to Removal and Installation*, Page 6-8 and Chapter 4, *Service Calibrations*.

**Remember that certain Calibrations are required even if an Assembly has been disassembled to gain access to another Assembly or Component.**

## The Printer does not Power ON

1. Check that the power cord is connected correctly to the Printer and to the Power Socket.
2. Check that the Power Switch on the BACK of the Printer is in the ON position.
3. Check to see the LED on the Front Panel Power Switch are On.
4. Check that the Front-Panel Cable is correctly connected to the Electronics Module. Also make sure that the Front-Panel cable is not damaged.
5. Replace the Power Supply Unit ⇒ Page *6-164*.

## The Printer Continuously Rejects Printheads

1. Clean the flex contacts on the Printhead and in the Carriage Assembly using the Carriage Interconnect Wiper (Refer to Page *1-72*) and try again.
2. If ALL the Printheads are rejected (the status message on the Front Panel does NOT show "OK" for ALL the Printheads) then perform the Electronic Module Test ⇒ Page *3-22*.

## Cover Sensors are not Working

1. Perform the Sensors Test ⇒ Page *3-33*.
2. Check if the cable for the faulty sensor is not damaged and is connected correctly.
3. Replace the faulty Sensor.

## The Line Sensor has Problems Detecting Media

1. Check the type of media that is being used since the Line sensor may have problems detecting transparent media or some types of Non-HP media. Try loading white HP media in to the Printer and check if the Line sensor detects it.
2. Sometimes the line sensor has problems detecting media when sheet media is loaded without a skew check. If the media type allows, always use the automatic skew check feature. If the media type does not allow automatic skew check, manually check that the media is correctly positioned.

3 The Line Sensor is not calibrated correctly. Perform the Line Sensor Calibration ⇒ Page *4-15*.

4 The Line Sensor is damaged or faulty. Replace the Line Sensor ⇒ Page *6-128*.

## Problems with Color Accuracy

1 The Color Sensor ESP (spectrophotometer) is a powerful tool unique to the Z series printers to maintain color accuracy. If you notice any problems with colors, perform the Color Sensor ESP (spectrophotometer) calibration. Refer to Page *4-18*.

## Troubleshooting Media Jams/Printhead Crashes

The failure modes "media jam" and "head crash" are grouped together because in many cases a media jam causes the media to lift up into the Carriage path and cause a Printhead crash, thus causing many media jam failures to be reported as head crashes.

1 Did the media jam occur when loading media?

- If the client has had media jams, it is common for pieces of media to get stuck in the media path. Clear the media path.

**When clearing a media jam, sometimes media is stuck in the paper path. To clear this, you must lift the Media Lever and insert thicker media into the paper path to push out the media that is still stuck there.**

2 Is the customer using non-HP media?

- The use of non-HP media can easily be the cause of media jams and head crashes (especially head crashes because HP media is specially formulated to avoid cockle, one of the primary causes of head crashes). If the media is not HP approved, advise the customer to use HP media and check to see if the problem is now solved.

3 Has media been loaded without skew check?

- Loading media without skew check can cause printhead crashes both during loading and while printing. Whenever automatic skew check is available for a media type, it should be used. If automatic skew check is not allowed for the media type, manually check that the media is correctly positioned.
- Standard/Normal Cut Sheets, depending on the degree of skew, cause printhead crashes when the corners are not evenly controlled (they are not pinched at the same time). This makes it more likely that the paper will be bent or damaged. Frequently, the paper curls upward when the paper expands due to ink absorption.
- Commercial FA Arts Sheets have the same problem as the Standard/ Normal Cut Sheets described above. The difference is that the Commercial FA Arts Sheets have a weak, irregular edge that often makes the problem worse.
- Hand-cut Rollsheets or Leftovers are not supported by the printers because errors are frequently made by the operator that cause printhead crashes.

## The printer has problems ejecting sheet media

The printer has problems ejecting sheet media, either continuing to eject the paper long after it has been ejected or stopping the ejecting process before the paper is completely ejected from the printer. To solve the problem, try the following:

- Load media using the skew check feature whenever it is possible. When sheet media is loaded without the skew check feature, the printer estimates the length of the paper to be 4 times the width. If this estimate is either too short or too long, the printer will not properly eject the media.

## Banding at variable extreme environmental conditions

Since the Accuracy Calibration has been done at normal environmental conditions, printing in extreme environmental conditions will cause banding because the advance of the Media Advance Roller does not correspond to the conditions present when the calibration was performed. To solve the problem, try the following:

- Perform the Accuracy Calibration in the new environmental conditions (Refer to the User's Guide).

## Worm marks on HP Coated media with light area fills

Light bands (S-shaped) in Paper axis direction where light area fills are printed, causing unacceptable Image Quality defect.

- Print the Service Configuration Print and check if the level of Humidity is very low (below 30%). Increasing humidity may help in reducing the severity of the problem.

**The media is causing the problem and NOT the Printer. Do not attempt to try and replace Printer parts to solve this problem.**

## Solving Media-Handling Problems

The Front Panel indicates that media is misaligned or incorrectly positioned

**Roll media**

- The roll may be loaded the wrong way. The paper should load over the roll toward you.
- Check that the paper is correctly loaded onto the spindle.
- The paper may be loaded at an angle. The right-hand edge must be aligned with the blue line on the Print Platen.

**Ensure that the paper is wrapped tightly on the roll. This is a very important step to remember because if this is not done, the media may be loaded at an angle, causing the media to be rejected.**

- Make sure you choose the correct loading option on the Front Panel.

**Sheet media**

- Always load sheet media using the Rear Input Tray. Do NOT load the media as you would load roll media, unless you are getting marks on the media with thick cut sheet media.
- It must be loaded with the right-hand edge against the blue line on the Print Platen.
- Load the sheet media without skew check.
- The media may be crumpled or warped or may have irregular edges.
- If hand-cut media is used, the edges may not form a right-angle or they may be rough. If possible, hand-cut media should not be used. Only purchased sheet media should be used in the Printer.
- If you have problems with paper jams, check that the Overdrive is not obstructed by bits of paper or using the Turn Drive Roller Service Utility ⇒ Page *3-61*.
- Make sure you choose the correct loading option on the Front Panel.

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# Software Troubleshooting

## General advice:

Check that you have the latest driver release. Driver releases are available at www.hp.com/go/graphicarts

### Installation

If the driver is available in a share drive, copy the installer or zip file locally into the hard disk before executing it.

The drivers are published in different formats in the web

- Installer for Windows (.exe file that can be executed to start the installation)
- Compressed package including all files that are needed to install the driver through the Add a Printer Wizard in Windows (.exe file that can be automatically extracted)
- Image file for Mac (.dmg file)

Usually the Windows installer includes other components apart from the driver, like the HP Standard TCP/IP Port. This is the recommended port type when you need to install the printer on the network, so make sure that you have installed the driver with the installer at least once to have this port type available.

If you want to upgrade the driver in the future, although it is recommended to continue using the installer, you can use the manual wizard if you are concerned about file download size. When you install the driver from the original CD/DVD, you are using the Installer so the necessary components will be installed also.

Installation logs are located at:

- C:\windows\hpdjxxxx.log (different for each printer name)
- C:\windows\sounder.his
- C:\windows\hpntwksetup.ini

They might be useful in case of escalating an installation error to the Lfp Helpdesk

## Problems with Image Clipping

This normally indicates a discrepancy between the actual printable area on the loaded paper and the printable area as understood by the software. This kind of problem can often be identified before printing by previewing the print.

- Check the actual printable area for the paper size that is loaded. printable area = paper size – margins
- Check what the software understands to be the printable area (which it may call “printing area” or “imageable area”). For example, some software applications assume standard printable areas that are larger than those used in this Printer.
- If a custom page size with very narrow margins has been defined, the

printer may impose its own minimal margins, clipping the image slightly. Consider using a larger paper size, or border less printing.

- If the image contains its own margins, it may be possible to print it successfully by using the Clip Contents by Margins option.
- If a very long image needs to be printed on a roll, check that the software is capable of printing an image of that size.
- The page may have been rotated from portrait to landscape on a paper size that is not wide enough.
- If the paper was loaded without the skew check feature, the preview function may not function correctly because the printer must estimate the paper length. Whenever possible, load media using the skew check feature.
- If necessary, change the printable area in the software.
- If necessary, reduce the size of the image or document in your software application, so it fits between the margins

### Another Possible Explanation

Some applications, such as Adobe Photoshop, Adobe Illustrator, and CorelDRAW, use an internal 16–bit coordinate system which means that they cannot handle an image of more than 32,768 pixels. If you try to print an image larger than this from these applications, the bottom of the image will be clipped. In this case, the only way to print the whole image is to reduce the resolution so that the whole image requires fewer than 32,768 pixels. An image 32,768 pixels long would print at a length of 54.61 in or 1.39 m if you select Best or Quality in the driver, 109.23 in or 2.78 m if you select Fast, Normal or Speed in the driver.

To print the whole image, try these suggestions:

- When printing into a PS printer, Try using the PostScript printer driver to print your job, if you have not already tried it
- The Windows PCL3 driver dialog includes an option called Max. application resolution, which enables you to print successfully in this situation. For the Z3200 it is set to Auto. For older products, or if you want to make sure that the resolution is lowered, you might need to change the setting manually to 300. You can find the option in the Advanced tab, under **Document Options > Printer Features**.
- Save the file in another format, such as TIFF or EPS, and open it with another application.
- Use a RIP to print the file.

## Output Only Contains a Partial Print

If the output that was expected only contains a partial image, then try the following to resolve the problem:

1. Was the **Cancel** key pressed before all the data was received by the Printer? If so, send the file again and make sure that the **Cancel** key is not pressed.
2. The **I/O Timeout** setting may be too short. Increase the I/O timeout setting (Setup Menu/I/O Setup/IO Timeout) and then send the file again.

3. There might be a communications problem between the Printer and Computer. Check the USB or network cable between the computer and the Printer to make sure it is not damaged and is connected correctly.
4. Make sure that the software settings are correct for the current page size (e.g. long-axis prints).
5. If network software is being used, make sure it has not timed out.

## Some objects are missing from the printed image

Large quantities of data may be necessary to print a high-quality large-format print job, and in some specific workflow there may be issues that can lead to some objects missing from the output.

### Corrective Action

- In the Advanced tab, select Document options, Printer features, and set Send job as bitmap to Enabled (HP-GL/2 driver only).
- In the Advanced tab, select Document options, Printer features, and set 16-bit App. Compatibility to Enabled.
- Select a smaller page size and scale to the desired final page size in the driver or in the front panel.
- Save the file in another format, such as TIFF or EPS, and open it with another application.
- Use a RIP to print the file.
- Reduce the resolution of bitmap images in your application software.
- Select a lower print quality in order to reduce the resolution of the printed image.

The above settings are mentioned for troubleshooting purposes and may adversely affect the final output quality or the time necessary to generate the print job. Therefore, they should be restored to their default values if they do not help to solve the problem.

When working under Mac OS, the above settings are not available. Instead, try reducing the resolution of bitmap images in the application software being used.

## If the spool file size is bigger than 1GB, part of the image will be clipped

Versions affected: Any application in Windows XP

Drivers affected: Drivers that use EMF spooling

Description:

Some drivers generate spool files in EMF format. The OS has a limitation in the size of this EMF file. Currently the drivers that use EMF are:

- Z2100/Z3100 PCL3GUI driver
- Z2100/Z3100 HP-GL/2 driver if the preview or back to front printing settings are used

### Corrective Action

- Reduce the resolution.

- Reduce resolution in driver by selecting a lower printmode (Best or normal instead of Max Detail).
- In the Advanced tab of the driver, select Max application resolution = 300 to reduce the driver resolution while keeping the rest of the printmode characteristics (number of passes for example).
- Disable the Print Processor module in the PCL3GUI driver, which is responsible for generating EMF. You can do this by going to the Advanced tab of the driver and disabling the Advanced Printing Features. The trade-off is that you cannot use the following features in the PCL3GUI driver: Preview, rotation, scaling, Office features, Back to front printing.
- In the HP-GL/2 driver, do not use preview or back to front printing to avoid generating EMF files.
- Use a RIP or a PS model

**Limit for Windows 2000 spool file size is smaller (200MB).**

Observation: Customer might report that when choosing preview, the job is not printed but it is printed when he does not select the preview setting. The cause of the problem might be related to the fact that the HP-GL/2 driver will use EMF if you do a preview so this limitation applies in this case.

## When the image needs to be rotated, parts of the image might be clipped or disappear

Versions affected: Any application in Windows

Drivers affected: Drivers that use EMF spooling, like the PCL3Gui driver for the Z Series

**Description:**

When the image is rotated, sometimes part of the image is clipped. We have seen this in several applications like Photoshop or Acrobat. In other cases, instead of clipping the end of the image, the symptom is that some objects inside the image disappear, we have seen the effect in Acrobat.

**Corrective Action**

- If possible, rotate inside the application instead of in the driver
- Reduce resolution in driver by selecting a lower printmode (Best or normal instead of Max Detail)

Remember that if the image is wider than the paper loaded, the image will be automatically rotated. If possible rotate the image inside the application instead of letting the driver rotate it automatically when it does not fit.

**Driver version available in Fall'08 will improve the performace when printing big files or rotating images.**

## Adobe Photoshop

**It is not possible to open images that have more than 300,000**

**pixels in any direction (width or length)**

Versions affected: All

Drivers affected: All

**Corrective Action**

Not available

**It is not possible to print images that have more than 30,000 pixels in any direction (Print menu gets grayed out)**

Versions affected: CS and previous

Drivers affected: All

**Corrective Action**

- Reduce image resolution in Photoshop (Image –> Image Size)
- Use a RIP to print the file

**Image will be clipped if it is longer than 32768 pixels**

Versions affected: All except CS2

Drivers affected: PCL3GUI and HP-GL/2 drivers

Description:

If the page size to be printed is bigger than 32768 pixels in any direction (215 pixels), the image will not be completely printed. The number of pixels depends on the driver resolution:

- At 1200dpi you can print 27.31” (69cm). This is equivalent to Max Detail in the Z2100/Z3100 driver
- At 600 dpi you can print 54.61” (1.39m). This is equivalent to Best in the Z2100/Z3100 driver
- At 300 dpi you can print 109.23” (2.78m). This is equivalent to Fast or Normal in the Z2100/Z3100 driver

**Corrective Action**

- Reduce resolution in driver by selecting a lower printmode (Best or normal instead of Max Detail)
- In the Advanced tab of the driver, select Max application resolution = 300 to reduce the driver resolution while keeping the rest of the printmode characteristics (number of passes for example)
- Convert the image to PDF and print from Acrobat, or use a RIP
- Print from CS2. CS2 allows printing 231pixels, which results in lengths of kilometers.
- Reduce the image size so that it is inside the limits that can be printed and then scale from the driver to the desired size
- Use a RIP or a PS model

**Carriage stops between swaths leaving some horizontal marks in the middle of the plot**

Versions affected: All but seen more often in CS3

Drivers affected: PCL3GUI drivers

Description:

When printing some long or high resolution images, even if being inside the limits of the number of pixels that can be printed, sometimes the carriage stops between different swaths. When the carriage stops, an horizontal line in a different color might be seen due to the ink that has dried between the different passes of the carriage over the same swath

**Corrective Action**

- Reduce resolution in driver by selecting a lower printmode (Best or normal instead of Max Detail)
- In the Advanced tab of the driver, select Max application resolution = 300 to reduce the driver resolution while keeping the rest of the printmode characteristics (number of passes for example)
- Disable the Memory manager setting in the Advanced tab of the driver

**Driver version available in Fall'08 will improve the performace when printing big files or rotating images.**

### Image does not get correctly centered

http://www.adobe.com/go/kb402021

Versions affected: CS3

Drivers affected: All

Description:

Even after selecting the Center option in the Print Menu, the image is not centered

**Corrective Action**

- Install the Photoshop 10.0.1 update or later

### Portrait or landscape orientation is not taken into account

http://www.adobe.com/go/kb403012

Versions affected: CS3

Drivers affected: All

Description:

Print options such as landscape orientation, print preview, scale fit to media, roll paper-panormama printing, user-defined paper sizes, and printing the full image, don't work as expected when you print from Photoshop CS3. This can occur when you choose a custom page size in Photoshop CS3.

**Corrective Action**

- Get the latest CS3 patch
- Select the page size settings inside the File –Print menu instead of the File – Page Setup menu
- Ultimately use CS or CS2 to print the image

### Image is printed in letter size

Versions affected: CS3

Drivers affected: All

Description:

When creating a custom page size, the image is printed in letter size. The difference between this limitation and the pixels limitation is that in this case you have a reduction of size both in length and in width. In the case of the pixel limitation you only have the reduction in length, but the width is usually printed correctly.

**Corrective Action**

- Get the latest CS3 patch
- Create custom page sizes with bigger lengths than widths and then select the landscape option if needed.

**Latest drivers do not allow creating page sizes with bigger widths than lengths.**

- Select the page size settings inside the File –Print menu instead of the File – Page Setup menu
- In Windows Vista, open the print preferences dialog again after clicking on the Print button of the Photoshop Print dialog, and select again the custom page size. It will be kept in this way.
- Ultimately use CS or CS2 to print the image

## Adobe Acrobat

### Image is printed in letter size

Versions affected: All

Drivers affected: All

Description:

When creating a custom page size, it might not be available to be selected from the application until you close Acrobat and open it again. The result is that Acrobat will go back to the default selection for page size, which is Letter. If the customer does not realize that the page size changed again after closing the driver dialog, it will look like part of the image is clipped.

**Corrective Action**

- Close Acrobat and open it again.

### Clipped images when printing long files

Versions affected: All

Drivers affected: Drivers that use EMF spooling

- Z2100/Z3100 PCL3GUI driver
- Z2100/Z3100 HP-GL/2 driver if the following settings are selected: preview, back to front printing

Description:

The image is not completely printed. We have seen this more often in files that are longer than 54” (printing at 600dpi) or 108” (printing at 300dpi). There is a limitation in the way that Acrobat handles EMF files, sometimes depending on the complexity of the EMF file, part of the image is lost. It could be that the end of the image is not printed, or some objects might disappear.

**Corrective Action**

- Update to latest Acrobat version. Old Acrobat releases had limitations in the length of images that could be printed
- Create custom page sizes with bigger lengths than widths and then select the landscape option if needed.

**Latest drivers do not allow creating page sizes with bigger widths than lengths.**

- If you need to rotate the image, rotate it inside the applicatiion (with Acrobat Professional). Please be aware that when you rotate in Acrobat Reader you are just rotating the view but the file is not rotated.
- Reduce resolution in driver by selecting a lower printmode (Best or normal instead of Max Detail)
- In the Advanced tab of the driver, select Max application resolution = 300 to reduce the driver resolution while keeping the rest of the printmode characteristics (number of passes for example)
- Disable the Print Processor module in the PCL3GUI driver, which is responsible for generating EMF. You can do this by going to the Advanced tab of the driver and disabling the Advanced Printing Features. The trade-off is that you cannot use the following features in the PCL3GUI driver: Preview, rotation, scaling, Office features, Back to front printing.
- In the HP-GL/2 driver, do not use preview or back to front printing to avoid generating EMF files.
- Use a RIP or a PS model

## Microsoft Powerpoint

**Part of the image is lost when printing big slides in landscape orientation**

Versions affected: All

Drivers affected: Z2100/Z3100 PCL3GUI driver

Description:

When printing a slide in landscape format which will need to be rotated in order to fit in the currentlly loaded roll, the result is that parts of the image might disappear (objects, background), or the image might be clipped.

**Corrective Action**

- Upgrade the unit to HP-GL/2 and use the HP-GL/2 driver
- Save in a different format and print from another application
- Print on rolls that are wider than the slides that need to be printed

**Driver version available in Fall'08 will improve the performace when printing big files or rotating images.**

## Adobe Photoshop CS for Mac

### It is not possible to open images that have more than 300.000 pixels in any direction (width or length)

Versions affected: All

Drivers affected: All

#### Corrective Action

Not available

### It is not possible to print images that have more than 30.000 pixels in any direction (Print menu gets grayed out)

Versions affected: CS and previous

Drivers affected: All

#### Corrective Action

- Reduce image resolution in Photoshop (Image –> Image Size)
- Use a RIP to print the file

### Image will be clipped if it is longer than 32768 pixels

Versions affected: All except CS2. Illustrator or Indesign have similar limitations.

Drivers affected: PCL3GUI drivers

Description:

If the page size to be printed is bigger than 32768 pixels in any direction (215 pixels), the image will not be completely printed. The number of pixels depends on the driver resolution:

- At 1200dpi you can print 27.31” (69cm). This is equivalent to Max Detail in the Z2100/Z3100 driver
- At 600 dpi you can print 54.61” (1.39m). This is equivalent to Best in the Z2100/Z3100 driver
- At 300 dpi you can print 109.23” (2.78m). This is equivalent to Fast or Normal in the Z2100/Z3100 driver

#### Corrective Action

- Reduce resolution in driver by selecting a lower printmode (Best or normal instead of Max Detail)
- Convert the image to PDF and print from Acrobat, or use a RIP
- Print from CS2. CS2 allows printing 231pixels, which results in lengths of kilometers.
- Reduce the image size so that it is inside the limits that can be printed and then scale from the driver to the desired size

### It is not possible to print longer than 455inches

Versions affected: All

Drivers affected: PCL3GUI drivers

Description:

Photoshop uses an internal resolution of 75dpi, so even if you have reduced the resolution of the image to print longer files and overcome the 30.000 pixels limitation, you will not be able to print longer than 455inches.

**Corrective Action**

- Use a RIP

## Adobe Illustrator/InDesign for Mac

It is not possible to create long documents

Versions affected: All

Drivers affected: All

Description:

When creating a new document, its size is limited to 227.5416 inches for Illustrator and 106inches for InDesign.

**Corrective Action**

Not Available

**It is not possible to print longer than 109inches**

Versions affected: All

Drivers affected: PCL3GUI drivers

Description:

Files longer than 109inches will be clipped. The reason is:

- Illustrator does not take into account the raster resolution from the application when printing on raster devices, and it always takes 300dpi, which is the driver resolution, to create the spool file. Therefore it limits the maximum printable document size to 109inches (32.700pixels/300dpi)
- InDesign has different settings to handle resolution (full resolution, optimized resolution or screen resolution). For all cases, the spool file includes 300dpi data so the maximum length is also 109inches

**Corrective Action**

- Use a different application
- Use a RIP or a PS printer

# Print Quality Troubleshooting

## Print Quality Troubleshooting Actions

**For some Print Quality problems, a Call Agent can try and troubleshoot the Printer by requesting the Customer to perform certain actions. Using this process, most problems can resolved without the need of an on-site visit.**

When faced with a Print Quality problem, perform the following actions in order to resolve the problem:

1. Printer Configuration:
   - Check that the paper type loaded corresponds to the paper type selected in the front panel and in the software. You can verify the paper type selected through the Front Panel (Main Menu/Paper menu/View loaded paper).

   **If you load a sheet without using the skew check feature, the printer automatically estimates the paper length to be 4 times the width. If skew check is not used, the View Loaded Paper option will only reflect the estimation made by the printer, and not the real length.**

   - Make sure that the correct Print Quality settings are used for different types of print content.
   - Dry time should be set to “Optimal”.
2. Perform Printhead recovery (Main Menu/Image Quality Maintenance/ Clean Printheads).
3. Media:
   - Make sure that HP or HP-approved media is being used.
   - When loading the media, make sure to use the skew check feature whenever possible (skew check is not available for some types of media).
4. Perform the Printhead Alignment (Main Menu/Image Quality Maintenance/ Align Printheads), using the same paper type with which you were experiencing unacceptable image quality, if feasible (some paper types are not suitable for Printhead Alignment).
5. Check if the latest version of the firmware is installed. If not, install the latest firmware revision.

# The Service Image Quality Diagnostic Print

## What is the Service Image Quality Diagnostic Print?

The Printer contains an internal Image Quality Test which helps you to diagnose the possible source of any image quality defects. The Service IQ Diagnostic Print is available in the following options:

1. *Image Quality Service Best Plot*. This plot helps you to diagnose in more detail the possible source of any image quality defects. It is accessible through the Service Utility Menu.

   The *Image Quality Service Best Plot* uses the Best Print Mode and is divided in to three parts as follows:

   - Diagnostic Part 1: Printhead Reliability Test. The purpose of this test is to identify which Printhead is faulty.
   - Diagnostic Part 2: Printhead Alignment Test. This test is designed to check any color-to-color and bi-directional misalignment the printer may have.
   - Diagnostic Part 3: Printheads and Paper Advance test. This test is designed to check whether the Printheads and the Media Advance Mechanism are working correctly.

2. *Image Quality Service Normal Plot*. This plot is the same as the *Image Quality Service Best Plot* but uses the Normal Print Mode.
3. *Advanced Diagnostic Plot*. These tests provide more information of the IQ defects that we could find in the *Image Quality Service* plot. For more information, refer to page 1-29, *The Advanced Diagnostic Prints*.

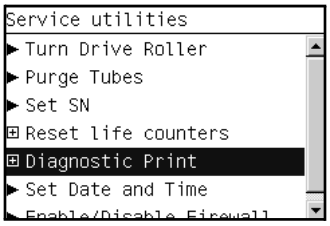
## Considerations for Printing the Diagnostic Print

1. The IQ Diagnostic Print prints in A3 and B sizes so you must have media loaded (roll or sheet) that is this size or larger.
2. Use the same type of media that the customer was using when they found the image quality problem.
3. If the customer is using non-HP media and after the Image Quality Test you still have the same image quality problems, change to genuine HP media and repeat the Image Quality Test.
4. If you do not see any problems with the Image Quality Test, the problem may not be with the printer itself. The problem may be with the RIP or the driver.

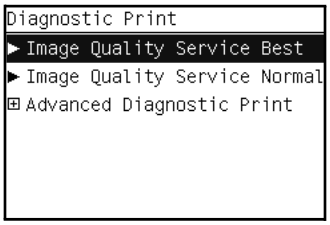
   If you do see problems with the Image Quality Test, continue with the Advanced Diagnostic procedures which will help you diagnose the problem.

## Printing the Diagnostic Print

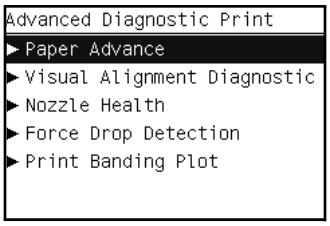
1. In the Service Utilities submenu, scroll to “Diagnostic Print” and press **OK**.




2. You will be given three options. Use the **Arrow** keys to make the selection and press the **OK** key to start printing the required Diagnostic Print or to enter the Advanced Diagnostics menu.




3. If you selected the Advanced Diagnostics Prints in the previous step, use the **Arrow** keys to make the required selection Paper Advance, Visual Alignment Diagnostic, Nozzle Health, Force Drop Detection or Print Banding Plot, and press the **Enter** key to start printing.



4 Make sure media is loaded, the Media Lever is lowered and that the Ink System is correctly installed. Press the **OK** key to print the Diagnostic Print or press **Back/Cancel** to exit without printing the Diagnostic Print.

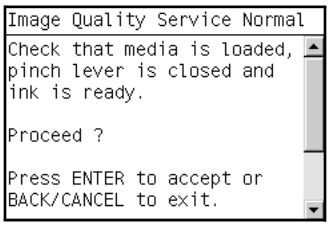


Image Quality Service Normal
Check that media is loaded, pinch lever is closed and ink is ready.
Proceed ?
Press ENTER to accept or BACK/CANCEL to exit.

5 The selected Diagnostic Print will now be printed.

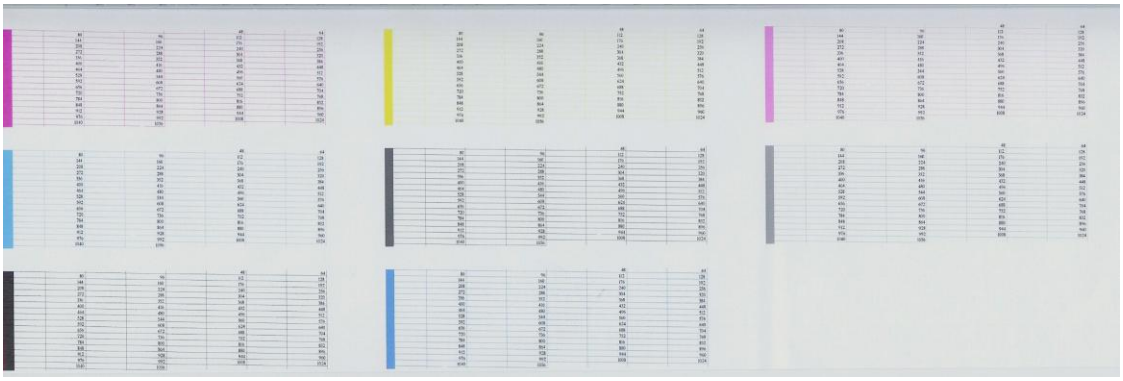
# Reading the Diagnostic Print Results

## Diagnostic Part 1: Printhead Reliability

The Nozzle Print Test test is designed to check if the Printhead nozzles print correctly.

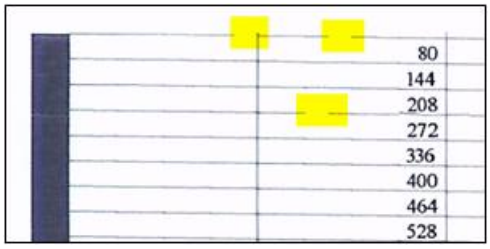
The nozzles check (bottom of the plot) is printed in a one-pass full swath mode. The diagnostics test prints out every single nozzle of each Printhead without applying an error hiding or alignment algorithm.

For each Printhead, you can see both the adjacent and the consecutive nozzles.

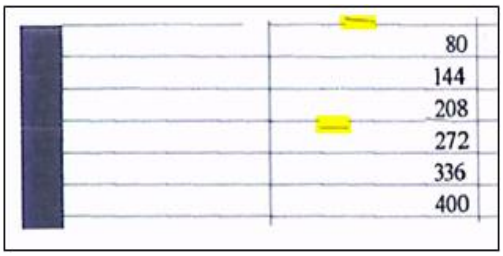


If any nozzles are not printing correctly they will be shown on the right of each Printhead Nozzle test.There is a series of numbered stepped diagonal lines. If one or more of the nozzles are clogged, malfunctioning or mis-positioned, you will see that the stepped lines are broken or misdirected in one or more places.

Below, the stepped lines highlighted in yellow are broken. When the line is completely broken, this means the nozzle is out.



Below, the stepped lines highlighted in yellow are misdirected. When the line is misdirected, this means the nozzle is malfunctioning or out of position.




On the left of each Printhead Nozzle test, there is a series of horizontal straight lines. If one or more nozzles are misdirected there will be unequal spaces between the corresponding lines.

### Corrective Action

If the printer has nozzle defects, you can still get perfect print quality results. The printer can automatically compensate for nozzle defects, so there is no need to replace the Printhead.

The method of improving Nozzle Defects is to:

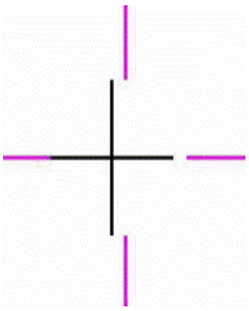
1. Recover the Printheads, using the Front Panel Main Menu/Image Quality Maintenance/Clean Printheads option.
2. Reprint the Printhead Nozzles Test Plot to verify that the defective nozzles have been corrected.
3. If the problem continues, replace the defective Printhead.

## Diagnostic Part 2: Printhead Alignment

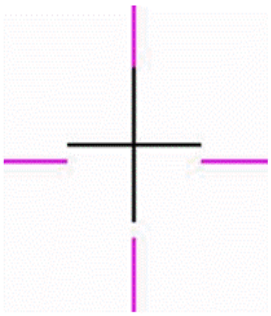
This test is designed to check any color-to-color and bi-directional misalignment the printer may have.

1. If the Printer is experiencing **horizontal** misalignment problems, the

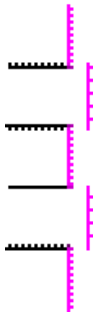
Alignment Test will show something like this:



2 If the Printer is experiencing **vertical** misalignment problems, the Alignment Test will show something like this:



3 If the Printer is experiencing **bi-directional** misalignment problems, the Alignment Test will show something like this:



**Corrective Action**

Perform the Printhead Alignment (Main Menu/Image Quality Maintenance/ Align Printheads), using the same paper type with which you were experiencing unacceptable image quality, if feasible (some paper types are not suitable for Printhead Alignment).

## Diagnostic Part 3: Printheads & Paper Advance

This test is designed to check whether the Printheads and the Paper Advance Mechanism are working correctly. This part of the Image Quality Test should **NOT** be used to check for color consistency or accuracy.

### Banding

If the Printer is experiencing a banding problem, you will see repetitive horizontal bands within the printed image.

- Darker horizontal bands or lines repeated along the vertical band (from top to bottom at the same distance).
- Whiter horizontal bands or lines along the vertical band (from top to bottom at the same distance).

The plot is printed in Best or Normal mode (according to the menu option selected) with Error Hiding ON. The top band has 100% ink density patches while the bottom band has 50% ink density patches.

### Troubleshooting Banding Problems

If banding **does NOT** occur in ALL the colors, then it is more than likely a Printhead problem. In this case, try the following:

1. Check that the appropriate print quality settings are being used (refer to the User's Guide for more information).
2. Recover the printheads using the option through the Front Panel (Main Menu/Image Quality Maintenance/Clean Printheads). Reprint the Diagnostic Print or the print file and if the problem persists, replace the faulty Printhead.

If banding **does** occur in ALL the colors, then it is more than likely a Paper Advance problem:

- If the bands are light, it means that the paper has advanced too much.

- If the bands are dark, it means that the paper hasn't advanced enough.
- In high quality modes, graininess in ALL colors can indicate problems either with alignment or Paper Advance.

**Corrective Action**

In order to solve problems that result in banding, try the following:

1. Check that the appropriate print quality settings are being used (refer to the User's Guide for more information).
2. Check that the loaded media is the same type as selected in the printer. You can verify the media type selected through the Front Panel (Main Menu/ Paper menu/View loaded paper).
3. If the customer is using low quality paper, try recommending better quality paper (preferably HP paper). Printer performance can only be guaranteed by using recommended papers.
4. Perform the Paper Advance Calibration using the same type of paper that will be used for the final print (Main Menu/Image Quality Maintenance/ Paper Advance Calibration/Calibrate Paper Advance).

   If there is white point banding in only one color band and the problem cannot be fixed using the Printhead recoveries, in some cases using the force a drop detection option can fix this issue. see *Force Drop Detection*, Page 1-37

## No Printing Defects Found in the Diagnostic Print

If all the test patterns from the Diagnostic Print are correct and you still experience Image Quality problems, you can use the following procedures to resolve the problem.

- Reading the Advanced Diagnostic Print Results
- Visual Alignment Diagnostic
- Nozzle Health
- Force Drop Detection

If you still see Image Quality problems after performing these tests and the Diagnostic Print still looks correct, then it might be a problem with the image itself, or a software/application problem.

# The Advanced Diagnostic Prints

## What are the Advanced Diagnostic Prints?

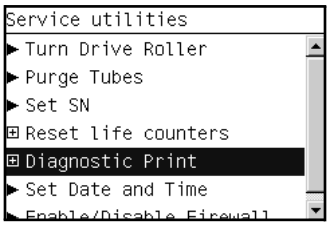
*Advanced Diagnostic Plot*. These tests provide more information of the IQ defects found in the *Image Quality Service* plot.

The *Advanced Diagnostic Plot* is divided into the following parts:

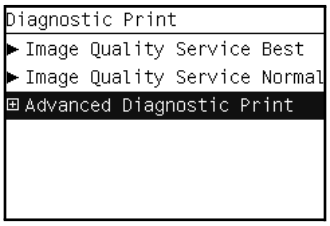
- Visual Media Advanced Diagnostic. Used to check advance reliability.
- Visual Alignment Diagnostic. Used to check pen alignment reliability.
- Visual Nozzle health Diagnostic. Used to check nozzle health reliability.
- Force Drop Detection. Used to reset the nozzle health historic data base and force new drop detection.

## Printing the Advanced Diagnostics Print

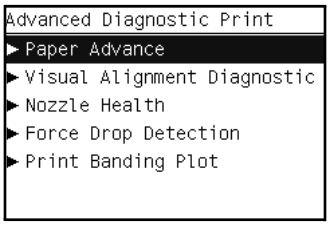
1 In the Service Utilities submenu, scroll to “Diagnostic Print” and press **OK**.



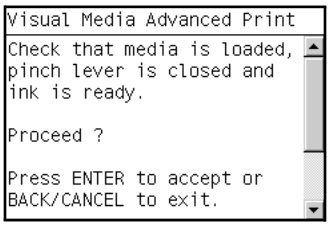

2 You will be given three options. Use the **Arrow** keys to select the Advanced Diagnostics menu.




3 From the displayed options, use the **Arrow** keys to make the required selection Paper Advance, Visual Alignment Diagnostic, Nozzle Health, Force Drop Detection or Print Banding Plot, and press the **OK** key to start printing.



4 Make sure media is loaded, the Media Lever is lowered and that the Ink System is correctly installed. Press the **OK** key to print the Diagnostic Print or press **Back/Cancel** to exit without printing the Diagnostic Print.


Visual Media Advanced Print
Check that media is loaded, pinch lever is closed and ink is ready.
Proceed ?
Press ENTER to accept or BACK/CANCEL to exit.

5 The selected Advanced Diagnostic Print will now be printed.

# Reading the Advanced Diagnostic Print Results

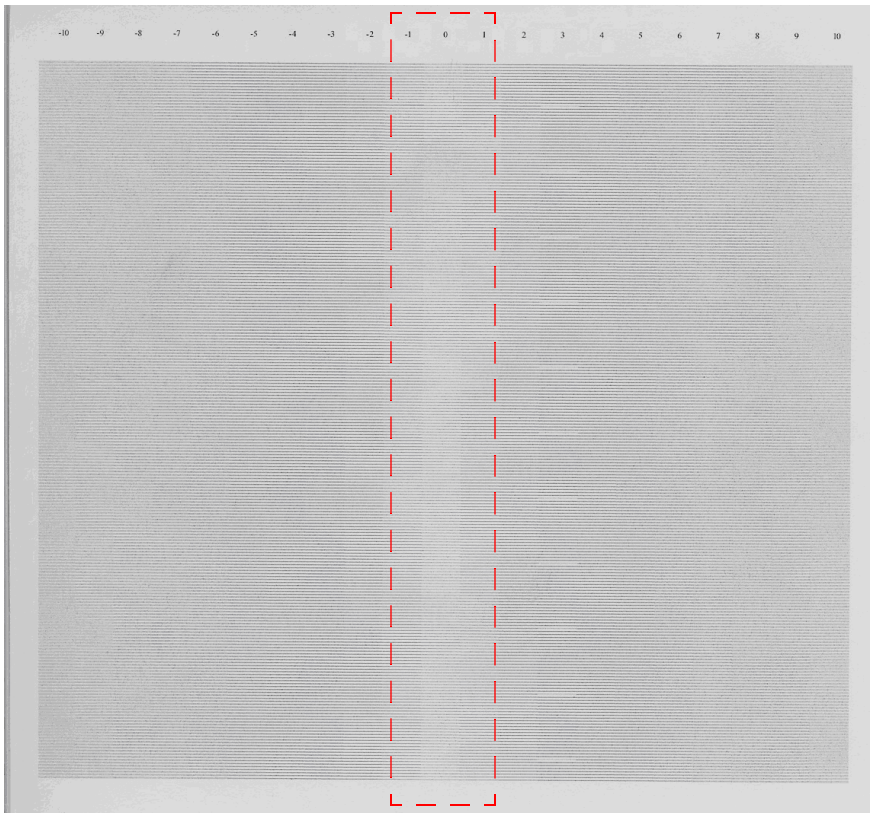
## Paper Advance

This plot helps you to visually check any alignment problems of the printer. You use it to precisely measure the media advance error with a one dot row accuracy, and to verify the stability of the media advance.

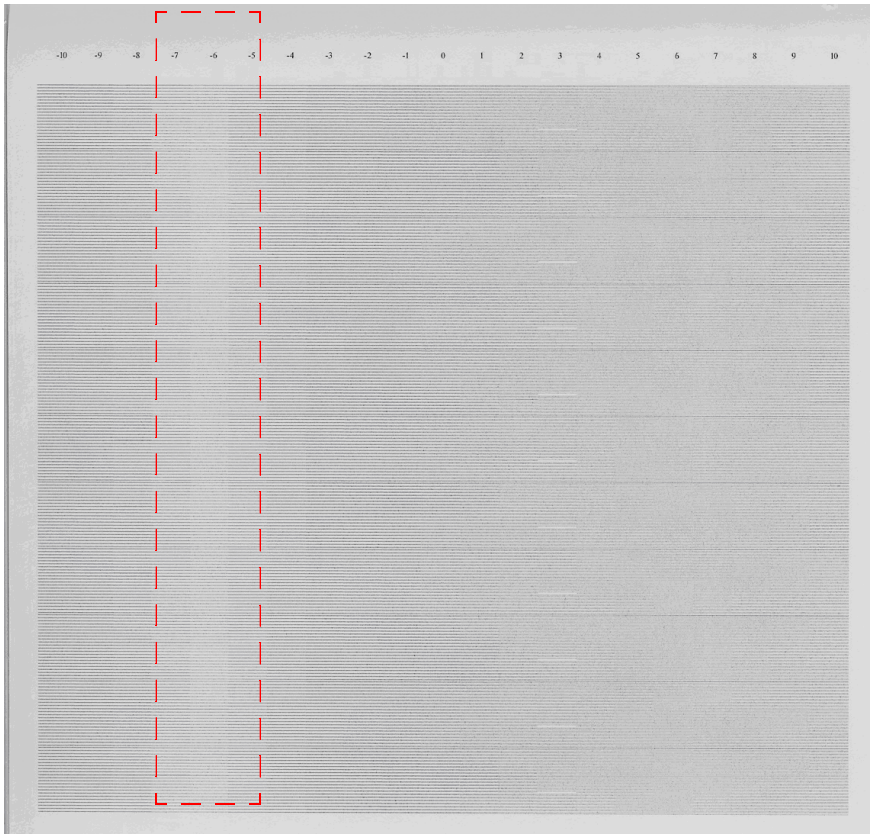
The whitest vertical line should be positioned in the 0 offset column with minor variations between +2 and -2 columns. If the offset is not positioned on the 0 column or between +2 and -2 columns and the whitest vertical varies greatly, the printer requires Paper Advance Calibration (Main Menu/ Image Quality Maintenance/Paper Advance Calibration/Calibrate Paper Advance).

**It is very important to verify that the loaded media is the same media type as selected in the front panel. You can verify the media type selected through the Front Panel (Main Menu/Paper menu/View loaded paper). The wrong type of paper selected will produce an offset error in the Paper Advance.**

The following plot shows correct media advance, there is a straight white line positioned close to the 0 column for the majority of the points.



The following plot shows a bad media advance, there is a straight white line positioned close to the -6 column, instead of the 0 column for the majority of the points.




### Corrective Action

To fix Paper Advance problems, try the following:

1. Check the Paper Advance Calibration Status. This can be done by going to Main Menu/Paper/View Loaded Paper. At the bottom, the Front Panel displays the Paper Advance Calibration status. There are three status messages:
   - **DEFAULT**. The paper loaded is recognized as HP paper, which is already optimized and calibrated for the printer. Do Not calibrate the Paper Advance for this paper.
   - **RECOMMENDED**. The paper loaded is NOT recognized as HP paper, and Paper Advance values have NOT been customized for this paper type. In this case, calibrate the Paper Advance from the user menu.
   - **OK**. This indicates that the paper loaded has been calibrated before. If the printer continues to have banding and graininess problems, calibrate the Paper Advance from the user menu.

**Whenever the printer's firmware is upgraded, the paper advance calibration values will be reset to factory default.**

2 To calibrate the Paper Advance from the user menu, go to Main Menu/ Image Quality Maintenance/Paper Advance Calibration/**Calibrate Paper Advance**.

**It is very important to verify that the loaded media is the same media type as selected in the front panel. You can verify the media type selected through the Front Panel (Main Menu/Paper menu/View loaded paper). The wrong type of paper selected will produce an offset error in the Paper Advance.**

**Some paper types are not suitable for Paper Advance Calibration. Do NOT use colored papers or transparent materials such as translucent bond, clear film, matte film, tracing paper, or vellum.**

Paper Advance calibration from the user menu will only calibrate the Paper Advance for the paper type loaded in the printer at that moment.

3 If Calibrate Paper Advance has mostly solved the problem, try Adjust Paper Advance to fine tune the Paper Advance (Main Menu/Image Quality Maintenance/Paper Advance Calibration/**Adjust Paper Advance**).

Select the percentage of change from -100% to 100%. To correct light banding, decrease the percentage. To correct dark banding, increase the percentage.

4 The Paper Advance calibration from the service menu will calibrate the Paper Advance for ALL paper types. This action is recommended when:

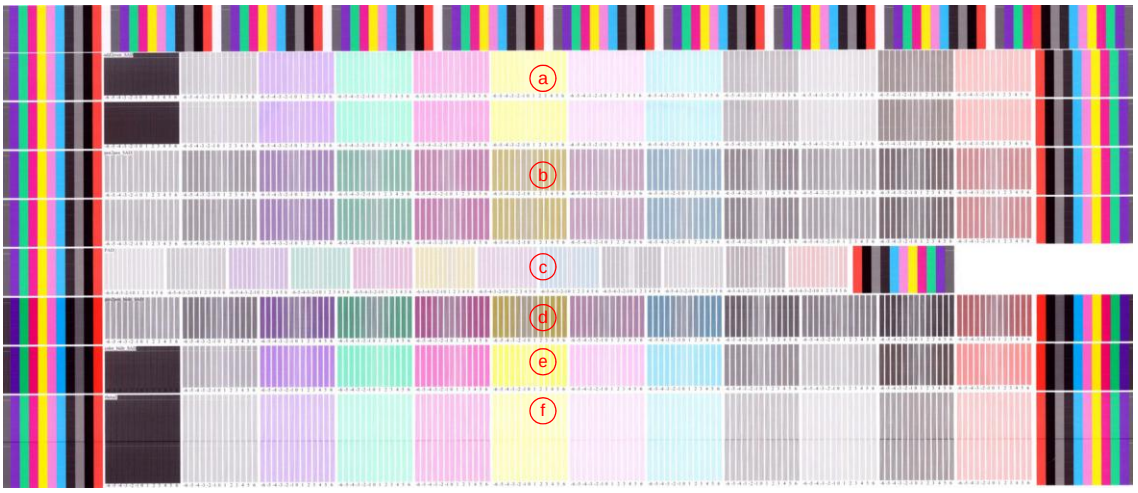
- The Paper Advance calibration from the user menu does NOT solve the problem.
- The Paper Advance problems affect ALL paper types.

The procedure for Paper Advance Calibration from the service menu is documented in Chapter 5, Service Calibrations. see *Paper Advance Calibration*, Page 4-6.

## Visual Alignment Diagnostic

This plot helps you to visually check any alignment problems of the printer. You use it to precisely measure the alignment error with a one dot row accuracy. For the printer to be considered correctly aligned, the results must be within ±1 dot row.

The illustration shows the complete Printhead Alignment that identifies each of the specific alignment test results covered.




The Visual Alignment Diagnostic print shows the following diagnostic test results:

**a** odd2even_SAD: Horizontal direction in forward and reverse.

**b** pen2pen_SAD: Horizontal direction.

**c** PAD

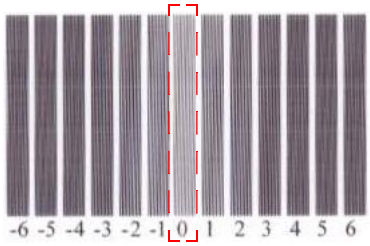
**d** pen2pen_bidir_SAD: Horizontal bi-direction.

**e** color_bidir_SAD: Horizontal bi-direction.

**f** thetaZ and VLS: only contour part (dark bands).

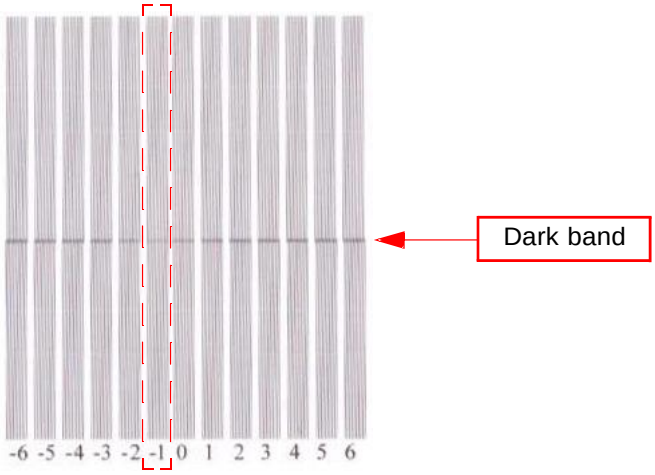
### Reading the Printhead Alignment Diagnostic Print

The following plot shows correct visual alignment. The lightest band is positioned on the 0 column.




### Corrective Action

For the thetaZ and VLS diagnostics the dark band of the print is the area to check. In the following example print the lightest segment of the dark band is positioned on the -1 column.

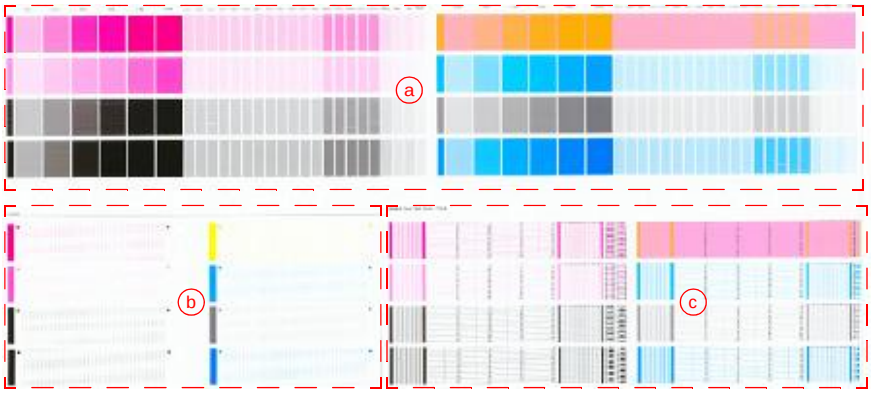



- If any of the printheads are misaligned beyond the ±1 dot row range, perform a Printhead Alignment. see *Aligning Printheads*, Page 1-66
- If a Printhead Alignment does not correct the problem, replace the bad printhead.

**If the customer is using non-HP media and after the Image Quality Test you still have the same image quality problems, change to genuine HP media and repeat the Image Quality Test. The best alignment calibration is obtained using HP Photo Paper.**

## Nozzle Health

The print contains three separate parts.




**a** The Variable Frequency Nozzle health plot with odd/even nozzles separation. This is used to detect misdirected or weak nozzles, nozzles not working correctly at all frequencies, or even Gloss Enhancer (GE) color problems.
This plot might show defects with the printheads that are not visible in the Service Image Quality Diagnostic Print. Look at the color bars and lines

to check if you see any missing parts of the plot, banding or white streak in them.

**b** Inspector measuring tool test plot.

**Test b should NOT be used by Service Engineers.**

**c** **Nozzle Print Test** which is also part of the Image Quality Service Plot. This test is designed to check that the Printhead nozzles print correctly. The test prints out every single nozzle of each Printhead. No error hiding or Printhead Alignment algorithm is applied. For each Printhead, you can see both the adjacent and the consecutive nozzles.

This is what you would see in the **Nozzle Print Test** part if there are nozzles not printing correctly:

1. On the right of each Printhead Nozzle test, there is a series of numbered stepped diagonal lines. If one or more of the nozzles are malfunctioning or mis-positioned, you will see that the stepped lines are broken or misdirected in one or more places.
2. On the left of each Printhead Nozzle test, there is a series of horizontal straight lines. If one or more nozzles are misdirected there will be unequal spaces between the corresponding lines.

### Corrective Action for Nozzle Defects

If the printer has nozzle defects, it does not mean that you will not get perfect print quality results. The printer has automatic procedures to hide many nozzle defects.

1. Recover the Printheads using the option through the Front Panel (Main menu/Image quality maintenance/clean printheads).
2. Reprint the Nozzle Print test to check that the defective nozzles have been corrected.
3. If the problem continues, replace the defective Printhead.

## Force Drop Detection

If the **Nozzle Print Test** plot has persistent white point banding in only one color that cannot be fixed with a printhead recovery, you can use this option to resolve the problem by resetting the nozzle health data base so that all nozzles are assumed to be correct.

Once the nozzle health data base has been reset drop detection is forced.

The normal cause of this white point banding in a single color is the incorrect detection of failed nozzles by the drop detector.

# Troubleshooting Print Quality Problems

## Print Quality General Advice

1. To achieve the best performance from the printer, only genuine HP accessories and supplies should be used.
2. Make sure that the **paper type** selected in the Front Panel is the same as the paper type loaded into the printer and selected in your software.
3. Make sure to use the most appropriate print quality settings for your purposes. A lower print quality is likely to be seen if the print quality slider has been moved to the **Speed** end of the scale, or the custom quality level set to **Fast**.
4. Check that the environmental conditions (temperature, humidity) are within the temperature/humidity range as specified for the Printer and customer substrate (refer to the User's Guide for more information).
5. Check that the ink cartridges and printheads have not exceeded their expiration dates.
6. Avoid touching the paper while printing is in progress.

## Horizontal Lines Across the Image (Banding)

### Description of problem

When you look at the image you have printed, there are horizontal lines across the image. Shown below is an example of what you might see if you have this problem:

### Corrective Action

1. Check that the paper type loaded corresponds to the paper type selected in the front panel and in the software. You can verify the paper type selected through the Front Panel (Main Menu/Paper menu/View loaded paper).

2 Check that the appropriate print quality settings are being used (refer to the User's Guide for more information) and reprint the image. In some cases print quality problems can be resolved by selecting a higher print quality level.

3 In case of banding at Best print quality, try the More Passes option in the driver.

4 Print the Service Image Diagnostics Print, and clean any printheads that need cleaning. Reprint the job in case the problem has been solved.

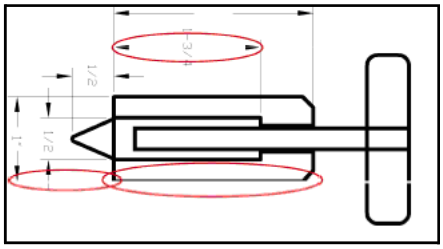
5 Check the paper advance calibration status. If the status is PENDING, perform the Paper Advance Calibration (Main Menu/Image Quality Maintenance/Paper Advance Calibration/Calibrate Paper Advance).

6 After calibration reprint the job.

## Lines are Missing, Too Thin, or Too Thick

### Description of problem

Shown below is an example of what you might see if you have this problem:



### Corrective Action

1 Check that the paper type loaded corresponds to the paper type selected in the front panel and in the software. You can verify the paper type selected through the Front Panel (Main Menu/Paper menu/View loaded paper).

2 Check that the appropriate print quality settings are being used (refer to the User's Guide for more information). Select the custom print quality options in the Print dialog, try turning on the Maximum detail option. Reprint the job in case the problem has been solved.

3 If the resolution of the image is greater than the printing resolution, a loss of line quality may be seen. You can find the Max. Application Resolution option in the Windows driver dialog's Advanced tab, under Document Options > Printer Features. Set the Max Application Resolution to 600. Reprint the job in case the problem has been solved.

4 Check the Printhead alignment status. If the status is PENDING, perform the Printhead Alignment (Main Menu/Image Quality Maintenance/Align Printheads). After alignment reprint the job.

5 Check the paper advance calibration status. If the status is PENDING, perform the paper advance calibration (Main Menu/Image Quality Maintenance/Paper Advance Calibration/Calibrate Paper Advance). After calibration reprint the job.

6 Use Part 3 of the Image Quality Diagnostic Print, check if there are a significant amount of nozzles out in the color that is **actually causing** the

problem (if see you a problem with the Black color in the customer print, then only check the Black printhead in the Image Quality Diagnostic Print). If there is a significant amount of nozzles out then replace the defective Printhead.

## Problems with Stepped Lines

### Description of problem

When you look at the image you have printed there are **'stepped lines'** in the borders of arrows and diagonal lines. The lines should be straight with no stepping.

Shown below is an example of what you might see if you have problems with Stepped Lines:

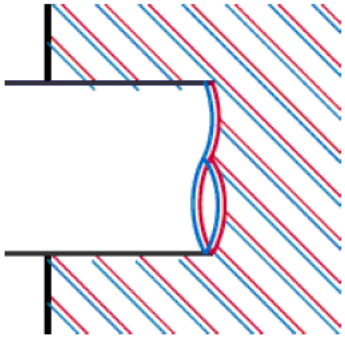
### Corrective Action

1. The problems may be inherent in the image that you are trying to print. Try to improve the image with the application that generated the file.
2. Check that the appropriate print quality settings are being used (refer to the User's Guide for more information).
3. Turn On the **Maximum Detail** option in the Driver. Printing speed will be reduced, and the maximum detail option sometimes causes problems like missing objects or clipped images. For most print jobs, the default resolution is highly recommended.
4. Change the image rendering resolution to 300 dpi or 600 dpi depending on the printing needs. You can find the Max. Application Resolution option in the Windows driver dialog's Advanced tab, under Document Options > Printer Features.

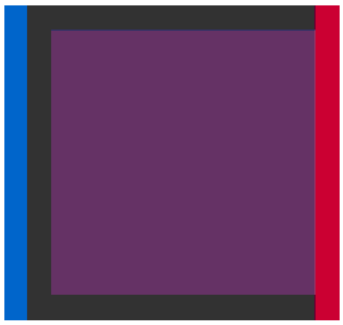
## Lines are Printed Double or in Wrong Colors

### Description of problem

This problem can have various visible symptoms, as shown below:



Colored lines are printed double, in different colors



Borders of colored blocks are wrongly colored

### Corrective Action

1 Reseat the Printheads by removing them and then reinserting them.

**As you reseat the printheads, the printer will automatically align the printheads. It is important that the alignment is completed properly, see** *Aligning Printheads*, **Page 1-66**

## Lines are discontinuous

If the lines are broken in the following way:

1 Check that the appropriate print quality settings are being used (refer to the User's Guide for more information).

2 Reseat the Printheads by removing them and then reinserting them.

**As you reseat the printheads, the printer will automatically align the printheads. It is important that the alignment is completed properly, see** *Aligning Printheads*, **Page 1-66**

## Lines are Blurred (Ink Bleeds from Lines)

### Description of problem

This problem is often caused by the ink soaking into the paper, making the lines blurred and fuzzy. This could be because of the humidity in the air.

### Corrective Action

1. Check that the environmental conditions (temperature, humidity) are suitable for high-quality printing.
2. Make sure that the **paper type** selected in the Front Panel is the same as the paper type loaded into the printer and selected in your software.
3. Try using a heavier paper type. When printing dense colors, it is recommended to use HP Heavyweight Coated Paper HP Super, Heavyweight Coated Paper or thicker Digital Fine Art papers.
4. If glossy paper is being used, try changing to a different type of glossy paper.
5. Select the custom print quality options in the Print dialog, and turn on the **More passes** option
6. Allow the prints time to dry separately; do NOT cover or stack them.
7. Align the printheads. see *Image Quality Maintenance Procedure*, Page 1-66.

## Problems with Graininess

### Description of problem

Shown below is an example of what you might see if you have problems with graininess:

### Corrective Action

1. Check that the paper type loaded corresponds to the paper type selected in the front panel and in the software. You can verify the paper type selected through the Front Panel (Main Menu/Paper menu/View loaded paper).
2. Check that printing is on the correct side of the paper.
3. Check that the appropriate print quality settings are being used (refer to the User's Guide for more information). Select the custom print quality options in the Print dialog, and try turning on the **More passes** option. Reprint the job in case the problem has been solved.
4. If you are using a Z3200 series printer, you can reduce grain by turning off or reducing the amount of gloss enhancer. You can do this through the Printer Utility, see the *Users Guide* for more details.
5. Check the Printhead alignment status. If the status is PENDING, perform the Printhead Alignment (Main Menu/Image Quality Maintenance/Align Printheads). After alignment reprint the job.
6. Check the paper advance calibration status. If the status is PENDING, perform the paper advance calibration (Main Menu/Image Quality Maintenance/Paper Advance Calibration/Calibrate Paper Advance).
7. After Paper Advance Calibration, reprint the job.

## Paper is not Flat

### Description of problem

If the paper does not lie flat when it comes out of the Printer, but has shallow waves in it, you are likely to see visible defects in the printed image, such as vertical stripes. This can happen when you use thin paper that becomes saturated with ink.

Shown below is an example of what you might see if you have problems with the paper not being flat:

### Corrective Action

1. Check that the paper type loaded corresponds to the paper type selected in the front panel and in the software. You can verify the paper type selected through the Front Panel (Main Menu/Paper menu/View loaded paper).
2. Try using a heavier paper type. When printing dense colors, it is recommended to use HP Heavyweight Coated Paper HP Super, Heavyweight Coated Paper or thicker Digital Fine Art papers.
3. Check that the environmental conditions (temperature, humidity) are within the temperature/humidity range as specified for the Printer (refer to the User's Guide for further information).
4. Select a paper type that is slightly thinner than the paper you have loaded; this will persuade the printer to use less ink. Here are some example paper types in ascending order of thickness:
   - Plain Paper
   - Coated Paper
   - Heavyweight Coated Paper
   - Fine Art Paper
   - Super Heavyweight Plus Matte Paper
   - Thick Fine Art Paper (>250 g/m²).

   If your paper type has different versions in the front panel with more and less ink, select the one with less ink.

## Print Scuffing or Scratching when Touched

### Description of problem

The black ink pigment can smudge when touched by a finger, a pen, or some other object. This is particularly noticeable on coated paper, matte proofing paper, and fine art material.

Glossy paper may be extremely sensitive to damage from the basket or to anything else that it contacts soon after printing, depending on the amount of ink used and the environmental conditions at the time of printing.

### Corrective Action

1. Handle prints carefully.
2. Avoid stacking prints on top of each other.
3. Disable the automatic cutter before printing, so that the print will not fall into the basket Alternatively, leave a sheet of paper in the basket so that freshly printed sheets do not make direct contact with the basket.

## Marks on the Media

Marks on the paper can come in a variety of forms, including horizontal smears, pinchwheel marks, starwheel marks, and ink marks on the back of the paper.

### Ink marks on the back of the paper

This can happen after a lot of border less printing, especially with non-standard paper sizes. Also, loading media without skew check frequently leads to printing on the platen. Ink residues on the platen are likely to mark the back of the paper.

### Corrective Action

- Clean the platen with a soft cloth. Clean each rib separately without touching the foam between the ribs.
- You can also load and unload a sheet of paper 3 times or until clean.

### Horizontal Smears on the Paper

Horizontal smears on the paper occur when the printheads touch the paper and smear the image. In extreme conditions the customers print can look like the image below where the printheads have actually come into contact with the media and scraped off the ink. This problem can happen for different reasons, and will mostly depend on the following factors:

- The type of paper used
- The printmode selected

- The environmental printing conditions

**Corrective Action**

1. Whenever you notice this problem, cancel the printing job immediately. Press the **Cancel** key and also cancel the job from your computer application. Soaked paper can damage the printheads.
2. Check that the paper type loaded corresponds to the paper type selected in the front panel and in the software. You can verify the paper type selected through the Front Panel (Main Menu/Paper menu/View loaded paper).
3. Use a recommended paper type and the correct print settings.
4. If using sheet paper, try rotating the sheet 90 degrees. The orientation of the paper fibers may affect performance.
5. If you are using sheet media, load the media with skew check enabled if it is possible (skew check might not be suitable for some papers due to the way they are manufactured or cut).
6. If a lot of ink is used on plain or coated paper, the paper absorbs the ink quickly and expands. As the printheads move over the paper, the printheads may touch the paper and smear the image. Try using a heavier paper type, like HP Heavyweight Coated Paper, HP Super Heavyweight Coated Paper or thicker Digital Fine Art papers that can absorb ink without expanding.
7. Select a paper type that is slightly thinner than the paper you have loaded; this will persuade the printer to use less ink. Here are some example paper types in ascending order of thickness:
   - Plain Paper
   - Coated Paper
   - Heavyweight Coated Paper
   - Fine Art Paper
   - Super Heavyweight Plus Matte Paper
   - Thick Fine Art Paper (>250 g/m²).

If your paper type has different versions in the front panel with more and less ink, select the one with less ink.

8 Try to increase the margins by relocating the image to the center of the page with the software application being used.

9 If horizontal smearing occurs when you are using Photo Gloss or Semi-Gloss papers, try setting the carriage position to HIGH. To set the carriage position to HIGH, create a custom paper type according to the following procedure:

**a** From the HP Easy Printer Care (Windows) or HP Printer Utility (Mac OS), create a custom paper type based on the paper type that resulted in horizontal smears (for Photo Gloss or Semi-Gloss papers ONLY). For more information on creating custom paper types, see the User´s Guide.

**When you name the paper type, it is a good idea to use the paper's commercial name and something indicating the high carriage setting.**

**b** Go to **Change Printing Properties** and select the paper that you just created.

**c** Change the paper thickness to the highest setting.

**d** Select the custom paper type from the Front Panel and align the printheads (see *Aligning Printheads*, Page 1-66)

**e** Check that the custom paper type is selected from the Front Panel and perform a Color Calibration.

**f** If the customer prints with ICC profiles, create a new ICC profile.

**g** Try printing the project again using the new custom paper with the carriage position set to HIGH.

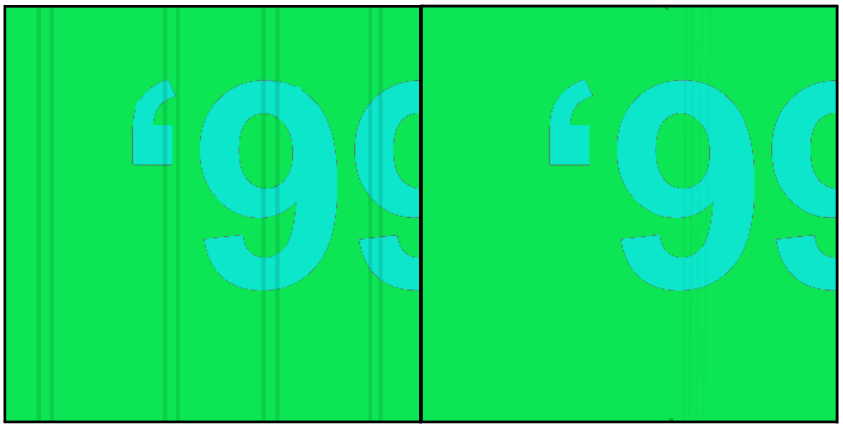
10 If the horizontal smearing occurs when you are using Digital Fine Art paper, the cause of the problem may be the environmental conditions. Check that the humidity and temperature are within specifications for both the printer and the paper.

11 If the humidity and temperature are OK, install the Extra High PRS Wedge. The Extra High PRS Wedge increases the distance between the printhead and the paper and can help eliminate horizontal image smearing problems.

**The new Extra High PRS Wedge can be ordered using Part Number Q5669-67055. For the relevant removal and installation procedures, see page 6-109.**

### Pinchwheel Marks

Pinchwheel marks are caused by the pressure of the Pinch Roller on the paper before printing the image. These are vertical marks that go through the entire plot and are more or less visible depending on the contents of the plot.



### Corrective Action

1. The cause of the Pinchwheel marks may be the environmental conditions. Check that the humidity and temperature are within specifications for both the printer and the paper.
2. If the printer is a Z2100/Z3100/Z3100ps, install the new Rubber Pinchwheel Kit. The new Pinchwheels are made of rubber material, greatly improving printer performance and eliminating Pinchwheel marks.

**The new Rubber Pinchwheel Kit (for the Z2100/Z3100/ Z3100ps printers) can be ordered using Part Number Q5669-67060. For the relevant removal and installation procedures, see page 6-200.**

**The Z3200 series already uses rubber pinchwheels, so this solution does not apply to the Z3200 series.**

### Rear Tray Marks

Rear Tray Marks are vertical marks that appear when using thick sheet media and loading it with the rear tray path. Although they appear similar to pinchwheel marks, they are not the same and can be diagnosed:

- Rear tray marks are 3 cm wide. Pinchwheel marks are 1.5 cm wide.
- Rear tray marks are 4-10 cm apart. Pinchwheel marks only 1 cm apart.
- The texture of a rear tray mark is very irregular, whereas pinchwheel marks are more consistent.
- For a 24 inch plot, you will see 1-5 rear tray marks. For a 44 inch plot, you will see 1-9 rear tray marks. If you see more marks than that, it is likely that they are pinchwheel marks.

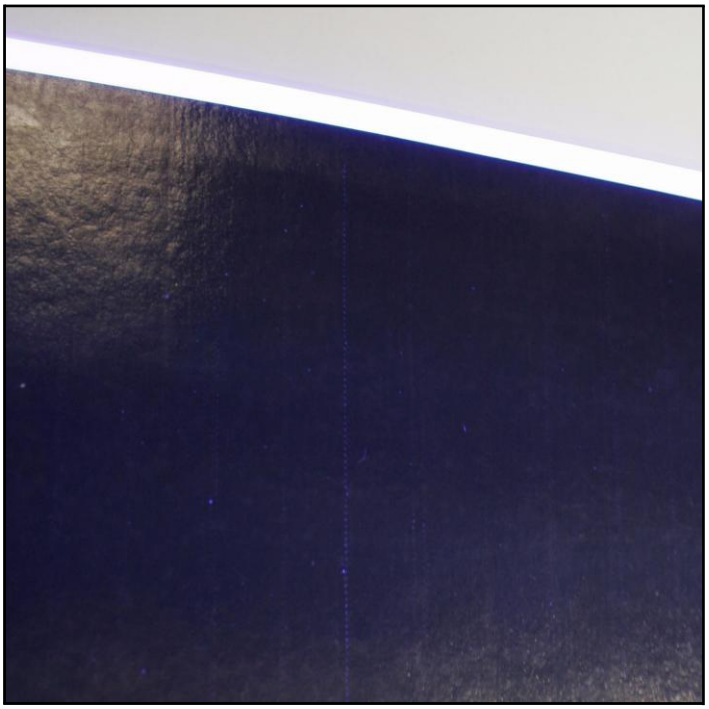
### Corrective Action

1. Load the media using the roll path instead of the rear tray path. Use the black hub of the spindle to align the sheet. Even if you use the roll path, you

should specify that you are loading a sheet to avoid print quality problems.

### Starwheel Marks

Starwheel marks are caused by the pressure of the starwheels on the paper just after the plot is printed. These are vertical, non-continuous marks that are more visible in dark areas of the plot..



### Corrective Action

1 If the printer is a Z2100/Z3100/Z3100ps, install the new Starwheel Assembly (with Actuator). The new Starwheel Kit tilts the Starwheel Rail, increasing the distance between the active starwheels and the paper and reducing Starwheel marks.

The **active** Starwheels are located over the Starwheel Roller, and the **passive** Starwheels are located inside the print path. The new Starwheel Assembly (with Actuator) reduces active Starwheel marks, but does NOT reduce passive Starwheel marks.

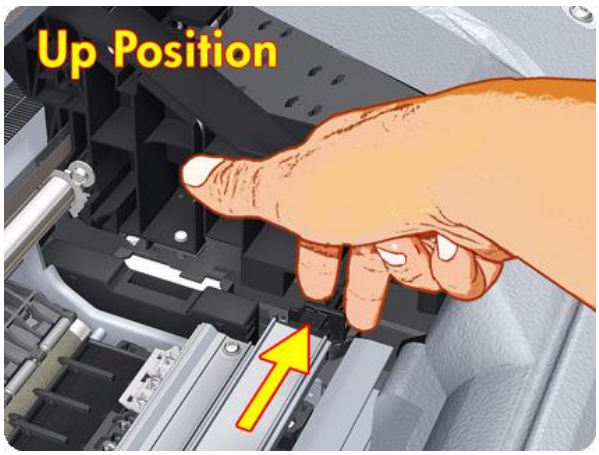
**The new Starwheel Assembly (with Actuator) (for the Z2100/Z3100/Z3100ps printers) can be ordered using part numbers Q5669-67061 (24 inch) or Q6659-67016 (44 inch). For the relevant removal and installation procedures, refer to page 6-164.**

**The Z3200 and Z2100 Revision C series have an automatic starwheel that can be controlled through the printer utility (Z3200) or the front panel (Z2100 Revision C).**

2 If the printer is a Z3200/Z3200ps or Z2100 Revision C, you can raise the starwheels to the UP position semi-automatically. See the User´s Guide.

3 For the Z2100 (revision a or b)/Z3100/Z3100ps printers, activate the UP position of the new Starwheel Assembly (with Actuator) on the left side. Slide the left actuator away from the Starwheel Assembly (the UP position).

4 Activate the UP position of the new Starwheel Assembly (with Actuator) on the right side. Slide the right actuator away from the Starwheel Assembly (the UP position).




### Dark Ink Marks on the Media due to cockle

They appear when the media advance is not properly controlled and so the carriage interferes with it (cockle). These marks can appear at the edges of the media (in the beginning of the plot) or at any other position in the plot.

### Corrective Action

1 If the starwheel position has been set to HIGH with the printer utility, set the starwheel position to DOWN again (use the actuators for the Z2100/ Z3100/Z3100ps, the Printer Utility for the Z3200, or the front panel for Z2100 Revision C). Although starwheel marks will be more visible, it should fix the “dark ink marks on the media” problem.

2 If using a roll that is close to its end, it could be that there is to much curling and it is not being well controlled by the Starwheels. A recommendation in this case would be setting the starwheel position to the DOWN position (use the actuators for the Z2100/Z3100/Z3100ps, the Printer Utility for the Z3200, or the front panel for Z2100 Revision C) and trying to remove

curling by, for example, leaving the media loaded on the machine during the night to "straighten" it.

3 If the problem continues after you have set the starwheel position to DOWN, the problem could be the Carriage Assembly, the Starwheel Rail, or the Starwheel End Support. Check to see if they are damaged or need to be replaced.

## Problems with the Edges of objects

### Stepped or not sharp

The edges of objects or lines appear to be poorly defined or lighter in density than expected.

### Corrective Action

- Make sure that the Print Quality slider is set to Quality, and that More passes and Max detail are set to OFF.

### Darker than expected

The edges of objects seem darker than expected.

### Corrective Action

- Make sure that the Print Quality slider is set to Quality, and that More passes and Max detail are set to OFF.

## Bronzing

When printing on photo paper with gray and black ink only a gloss differential problem can be encountered when light is directly reflected from the print, producing 'bronzed' reflections where ink has been laid.

### Corrective Action

If the printer is a Z2100:

- Use the full set of inks option when printing greyscale images.

If the printer is Z3100/Z3200:

- If using standard print quality options, ensure that the slider is set to Quality.
- If using custom print quality options, ensure that the Gloss enhancer option is set to Whole page. You can also try Economode.
- Make sure that the correct paper type is selected in the front panel and the driver or software of the customer.

If the printer is a Z3200 only:

- -Increase the amount of gloss enhancer used.

As general advice for all models, and as last resource, display the print vertically or behind a glass.

## Black and white prints do not look neutral

Consider printing in grayscale (color options submenu inside the printing preference menu). See the User´s Guide for more information.

- For all printers, check that the Advanced color options for grayscale printing in the driver are not being used to modify the neutrality of the grayscale prints.
- If the customer is already printing in greyscale, and the printer is a Z2100, select “Print with Black and Grey Inks Only.”

## Horizontal lines at the end of a cut sheet print

There is a type of defect that only affects the end of a print, within approximately 30 mm of the trailing edge of the paper. Some very thin horizontal lines may be seen across the print.

### Corrective Action

1. Print the Service Image Diagnostics Print, and clean any printheads that need cleaning. Reprint the job in case the problem has been solved.
2. Try printing with roll paper.
3. Try using larger margins around the image.

## Vertical lines of different colors

The print has vertical bands of different colors along it.

### Corrective Action

1. Try using a heavier paper type. When printing dense colors, it is recommended to use HP Heavyweight Coated Paper HP Super, Heavyweight Coated Paper or thicker Digital Fine Art papers.
2. Use higher print quality settings (refer to the User’s Guide for more information).
3. If you have already set it to Quality, try selecting **Custom Options** and then **More Passes**.

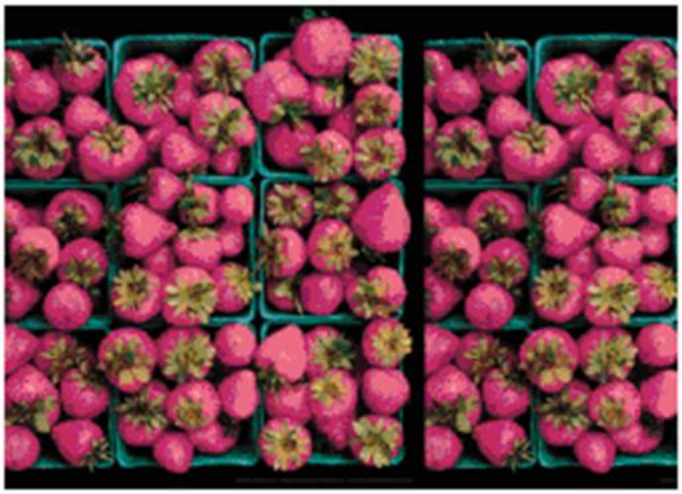
## White spots on the print

White spots are seen on the print. This is probably due to paper fibers, dust, or loose coating material.

### Corrective Action

1. Clean the paper manually with a brush before printing, to remove any loose fibers or particles.
2. Always keep the cover of the printer closed.
3. Protect paper rolls and sheets by storing them in bags or boxes.

## Problems with Color Accuracy



### Corrective Action

1. Ensure that the paper type being used has been color calibrated, which will give color consistency from print to print, and from Printer to Printer. Check that the paper type you have loaded corresponds to the paper type selected in the front panel and in your software.
2. Check that printing is on the correct side of the paper.
3. Check that the appropriate print quality settings are being used (refer to the User's Guide for more information). Reprint the job in case the problem has been solved.
4. If the problem consists of color differences between your print and your monitor, please follow the instructions in the "How to calibrate your monitor" section of the HP Color Center. At this point, you may wish to reprint your job in case the problem has been solved.
5. If you are using application-managed colors, check that the color profile you are using corresponds to the selected paper type. If you are working with non-HP papers, you might need to create an ICC Profile. If you have doubts about which color settings to use, or you want to create an ICC profile, see the users guide.

6 If you select application-managed colors in your application and printer-managed colors in the printer driver, your results will be wrong. You should manage colors in the application or in the printer, but not in both.

7 Print the Service Image Diagnostics Print, and clean any printheads that need cleaning. Reprint the job in case the problem has been solved.

### Color accuracy using EPS or PDF images in page layout applications

Page layout applications such as Adobe InDesign and QuarkXPress do not support color management of EPS, PDF, or grayscale files.

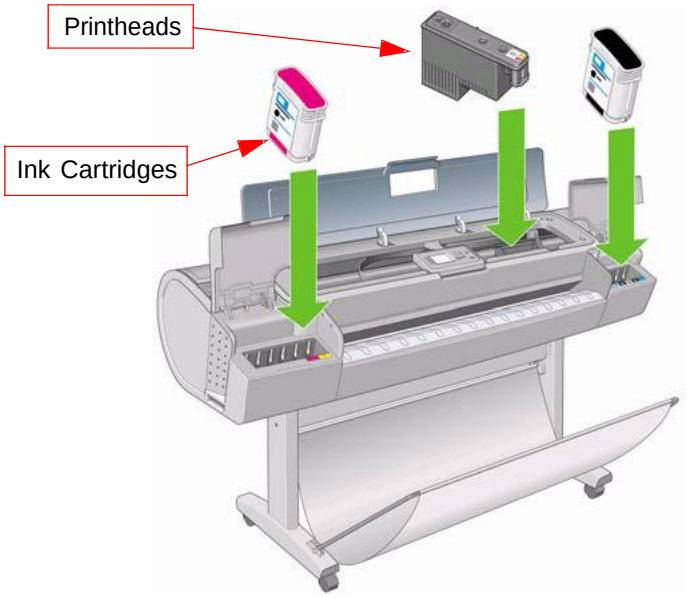
If these types of files have to be used, try to ensure that the EPS, PDF, or grayscale images are already in the same color space that is intended to be used later on in Adobe InDesign or QuarkXPress. For instance, if the final objective is to print the job in a press that follows the SWOP standard, at the time of creating the EPS, PDF or grayscale the image should be converted into SWOP.

# Ink Supplies Troubleshooting

## Introduction to Ink Supplies

### What are Ink Supplies?

For each of the ink colors used in the printer, there are two components, the Printhead and Ink Cartridge. These components are called Ink Supplies.




### Ink Cartridges

The printer's Ink Cartridges provide ink to the Printheads. The color Ink Cartridges supplied with the printer have a capacity of 69ml but optional 130 ml cartridges are also available.

**All these Ink cartridges are physically the same size. Only the internal capacity varies.**

The Ink Cartridges for the Z2100/Z3100 Photo Printer series require no maintenance or cleaning. As long as each Ink Cartridge is inserted correctly into its slot, the ink will flow to the Printheads. Because the Printheads control the amount of ink transferred to the page, you will continue to see high-quality printing results even when the ink levels are getting low.

The front panel displays the status of the Ink Cartridge. Using the front panel, detailed information can be viewed regarding the Ink Cartridges.

The following tables include all the ink cartridges available for the Z2100/ Z3100 Photo Printer series.

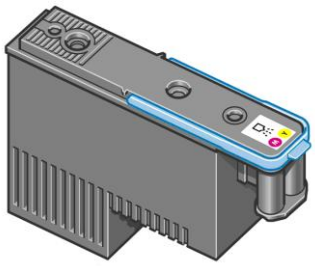
### Available Ink Cartridges

| | | Z2100 | Z3100 | Z3200 | Part number |
|---|---|---|---|---|---|
| **HP 70** | Matte Black | x | x | x | C9448A |
| | Photo Black | x | x | x | C9449A |
| | Gray | | x | x | C9450A |
| | Light Gray | x | x | x | C9451A |
| | Cyan | x | | | C9452A |
| | Magenta | x | x | x | C9453A |
| | Yellow | x | x | x | C9454A |
| | Light Magenta | x | x | x | C9455A |
| | Red | | x | | C9456A |
| | Green | | x | x | C9457A |
| | Blue | | x | x | C9458A |
| | Gloss Enhancer | | x | x | C9459A |
| | Light Cyan | x | x | x | C9390A |
| **HP 73** | Red | | | x | CD951A |
| **Twin Pack** | | **Z2100** | **Z3100** | **Z3200** | **Part number** |
| **HP 70** | Matte Black | x | x | x | CB339A |
| | Photo Black | x | x | x | CB340A |
| | Gray | | x | x | CB341A |
| | Light Gray | x | x | x | CB342A |
| | Cyan | x | | | C9452A |
| | Magenta | x | x | x | CB344A |
| | Yellow | x | x | x | CB345A |
| | Light Magenta | x | x | x | CB346A |
| | Red | | x | | CB347A |
| | Green | | x | x | CB348A |
| | Blue | | x | x | CB349A |
| | Gloss Enhancer | | x | x | CB350A |
| | Light Cyan | x | x | x | CB351A |
| **HP73** | Red | | | x | CD952A |

### Printheads

The Printheads are extremely durable and do not need to be replaced every time an Ink Cartridge is replaced. They are independent of the Ink Cartridges and will continue giving excellent image quality results even if the

Ink Cartridges are low on ink.



If you notice a decline in print quality such as lines or dots missing from text/ graphics, go to Page 1-20, *Print Quality Troubleshooting*.

### Available Printheads

| | | Z2100 | Z3100 | Z3200 | Part number |
|---|---|---|---|---|---|
| **HP 70** | Matte Black/ Cyan | x | | | C9448A |
| | Light Magenta/ Light Cyan | x | x | x | C9449A |
| | Magenta/ Yellow | x | x | x | C9450A |
| | Photo Black/ Light Gray | x | x | x | C9451A |
| | Blue/Green | | x | x | C9452A |
| | Matte Black/ Red | | x | | C9453A |
| | Gloss Enhancer/Gray | | x | x | C9454A |
| **HP 73** | Matte Black/ Red | | | x | CD949A |

### General Information About the Ink Supplies

For optimum results from the printer and modular ink delivery system always follow these guidelines when handling the ink supplies:

- Always install the Ink Cartridges and Printheads before the expiration date, which is on the packaging.
- Install Ink Cartridges and Printheads in their color-coded slots.
- Follow the instructions on the front panel of the Printer during installation.
- Avoid unnecessary removal of the Ink Cartridges and Printheads.
- When turning off the Printer always use the power Off button on the front panel. The Printheads are then stored correctly which prevents them from drying out.
- The Ink Cartridges should never be removed while the printer is printing. They should only be removed when the printer is ready for you to replace them. The front panel will guide you through the removal and installation

procedure.

### General Precautions When Handling Ink Supplies

Use the following precautions when handling Ink Supplies:

**Do not touch, wipe or attempt to clean the printhead nozzles. This can damage the printhead.**

- Handle the ink supplies with care. In particular the Printhead, which is a high precision device and must be handled carefully.
- Do not touch the Printhead nozzles.
- Do not put the Printhead down on the nozzles.
- Do not be rough when handling the Printheads. Always set them down gently.
- Do not drop the Printheads.
- Proper handling will assure optimum performance throughout the Printhead life.
- Do not touch the end of the Ink Cartridge which is inserted into the printer as there may be a small amount of ink on the connection.
- Avoid storing partially used Ink Cartridges on their ends.

### When Should You Replace the Ink Supplies?

When to change the ink supplies is mostly determined by you with guidance from the front panel. In conjunction with the messages displayed in the front panel and the message explanations in this chapter, you will be able to choose for yourself when is the right time to change the ink supplies.

The Printer will also display the ink level and will tell you when the ink supply is low on ink. This means you have constantly updated information about the ink supplies.

## Ink Cartridge Levels, Information, and Replacement

### Ink Cartridge Levels

**Trough out this chapter all the example Front Panel screens are for the Z2100 Photo Printer unless otherwise stated.**

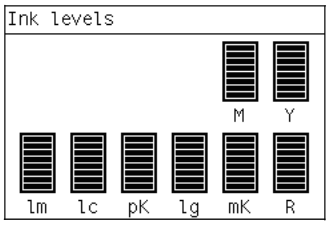
The front panel displays Ink Levels shown as level bars. These bars represent how much ink is remaining in the Ink Cartridges: as ink is used up the bars get shorter in length.

There are two methods for checking the ink levels of your Ink Cartridges.

### “View Ink Levels” Direct Access Key

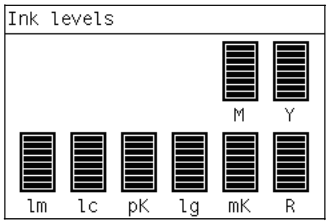
- Pressing the “View ink levels” direct access key on the Front Panel will immediately show you the ink levels. For more information about direct

access keys, see *Using the Front Panel*, Page 1-4



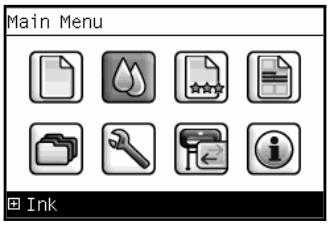

### "View Ink Levels" from the ink menu

- Choosing the **View ink levels option** from the Ink menu will immediately show you the ink levels:

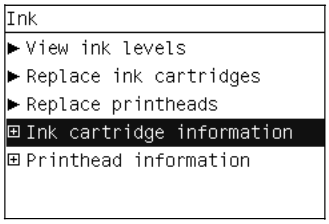



### Obtaining Ink Cartridge Information

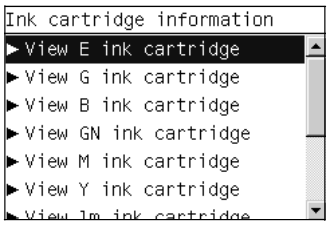
1. Scroll to the Ink Menu icon and press **OK**.



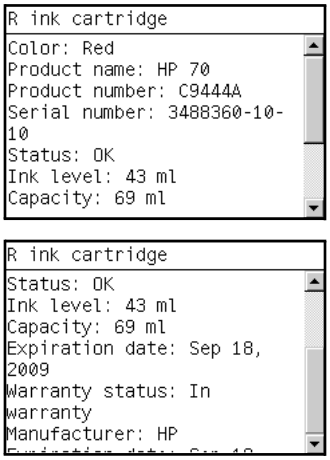

2. In the Ink Menu submenu, scroll to **Ink cartridge information** and press **OK**.




3. In the Ink Cartridge Information submenu, scroll to the Ink Cartridge that you want information on and press **OK**.



4 The front panel displays information on the selected Ink Cartridge. Use the **Arrow** keys to scroll through the information.




The information supplied is:

- The make of the Ink Cartridge (hp no.70/73 is recommended).
- The product number of the Ink Cartridge.
- The serial number of the Ink Cartridge.
- The current status of the Ink Cartridge.
- The current ink level of the ink cartridge in milliliters.
- Original capacity of the ink cartridge in milliliters.
- The manufacturer of the Ink Cartridge (hp is recommended).
- The current warranty status of the Ink Cartridge.

### Changing an Ink Cartridge

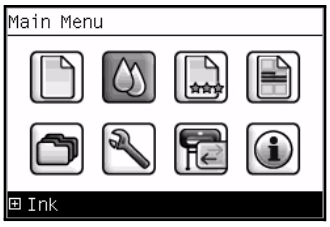
There are two occasions when you need to remove an ink cartridge:

- The ink cartridge is very low and you want to replace it with a full cartridge for unattended printing (you can use up the remaining ink in the first cartridge at a more convenient time).
- The ink cartridge is empty or faulty, and you must replace it to continue printing.

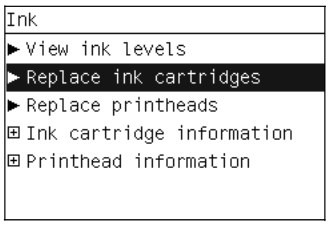
**Do not try to remove an ink cartridge while printing.**
**Remove an ink cartridge only if you are ready to insert another one.**
**Make sure the printer wheels are locked (the brake lever is pressed down) to prevent the printer from moving.**

Change an ink cartridge using the following procedure:

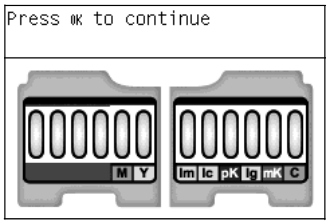
1 Scroll to the Ink Menu icon and press **OK**.




2 In the Ink Menu submenu, scroll to **Replace ink cartridges** and press **OK**.




3 The front panel displays the status of the Ink Cartridges.

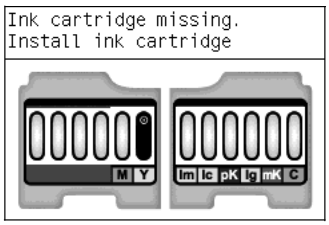



4 Press **OK** to continue.

5 Open the relevant Ink Cartridge cover for the Ink Cartridge you want to replace.

6 Pull the required Ink Cartridge straight up to remove it from the printer.

7 The front panel indicates the missing Ink Cartridge.

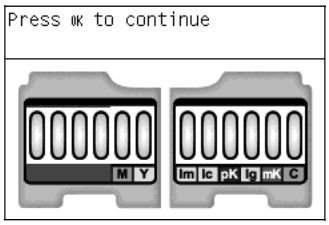



8 Before removing the cartridge from its wrapping, shake it vigorously.

9 Unwrap the new ink cartridge, find the label identifying the ink color. Check that the letter or letters marking the empty slot, matches the letter or letters on the cartridge label.

10 Insert the ink cartridge into its slot.

11 Push the cartridge into the slot until it snaps into position. You should hear a beep and see confirmation that the cartridge has been inserted.

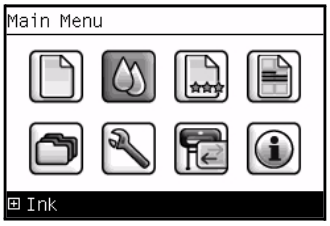



12 When all cartridges have been inserted, close the cover.

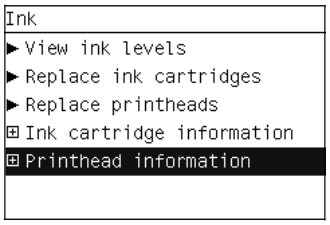
## Printhead Information, Replacement and Alignment

### Obtaining Printhead Information

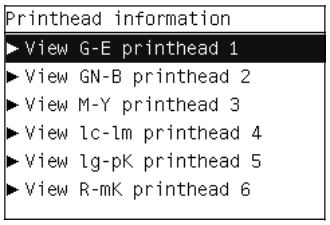
1 Scroll to the Ink Menu icon and press **OK**.



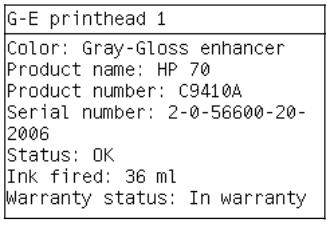

2 In the Ink Menu submenu, scroll to **Printhead information** and press **OK**.




3 In the Printhead Information submenu, scroll to the Printhead that you want information on and press **OK**.




4 The front panel displays information on the selected Printhead.

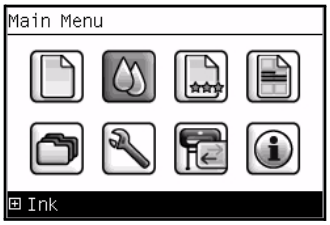



The information supplied is:

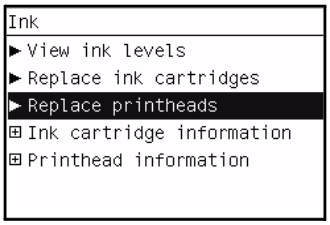
- The make of the printhead (hp no.70/73 is recommended).
- The product number of the Printhead.
- The serial number of the Printhead.
- The current status of the printhead.
- How much ink has been fired (consumed) by the printhead. **Note:** It is possible for a printhead to consume more than one Ink Cartridge.
- The current warranty status of the Printhead.

### Changing a Printhead

1 Scroll to the Ink Menu icon and press **OK**.



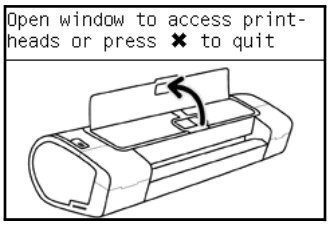

2 In the Ink Menu submenu, scroll to **Replace printheads** and press **OK**.




3 The printer moves the Carriage to the correct position to replace Printheads.

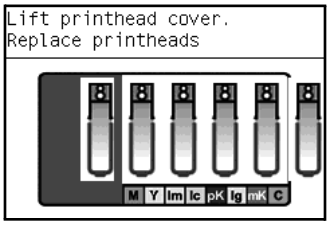
**If the carriage is left in the removal position for more than three minutes without inserting or removing any printheads, it will try to move back to its normal position at the right-hand end.**

4 When the carriage has stopped moving, the front panel display will prompt you to open the window and lift the carriage cover.



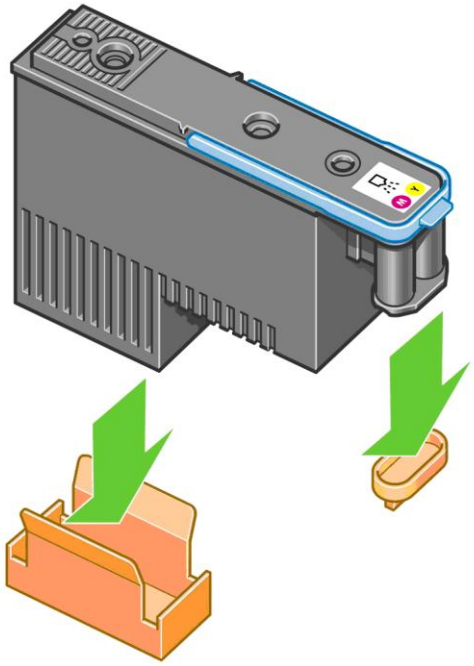

5 Open the window.

6 Lift the Carriage cover to access the printheads.



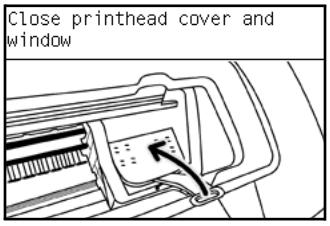
7 Lift the blue handle and pull the Printhead straight up out of the Carriage.

8 To insert a new printhead first remove the orange protective caps.

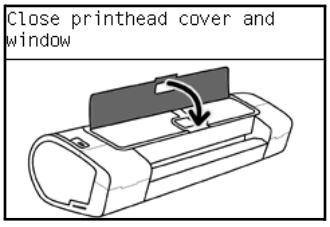


9 The printhead is designed to prevent you from accidentally inserting it into the wrong slot. Check that the colored label on the printhead matches the colored label of the carriage slot into which the printhead is to be inserted. Insert the printhead slowly and vertically, straight down. It may be damaged if you insert it too fast, or at an angle, or if you rotate it as you insert it.

10 Insert all other printheads that need to be installed, and close the carriage cover.




11 Close the Window.




12 When all the printheads have been inserted correctly and accepted by the printer, the printer will beep. If the printer does not beep when you insert the printhead and the **Replace** message appears on the front panel display, the printhead may need to be reinserted.
The front panel display confirms that all printheads are correctly inserted.

The printer will start checking and preparing the printheads. The default routine process, when all printheads are changed, takes 25 minutes. If the printer finds problems in preparing the printheads, it will take longer, up to 55 minutes. For a single printhead insertion, the times vary between 15 and 35 minutes. After all printheads are checked and prepared, for the printhead realignment.

### Aligning Printheads

Precise alignment between printheads is essential for accurate colors, smooth color transitions, and sharp edges in graphical elements. Your printer has an automatic printhead alignment process which runs whenever a printhead has been accessed or replaced.

In cases where the paper has jammed, you have used a custom paper, or are experiencing problems with color accuracy you may need to align the printheads. If the paper has jammed, it is recommended that you reinsert the printheads and initiate the realignment procedure with the Image Quality Maintenance menu.

**Do not use transparent and semi-transparent paper to align the printheads. Photo paper is recommended for the best quality, and roll or sheet media loaded with skew check is preferable to loading media without skew check. If possible, always avoid loading media without skew check.**

### Reinsert Printheads Procedure

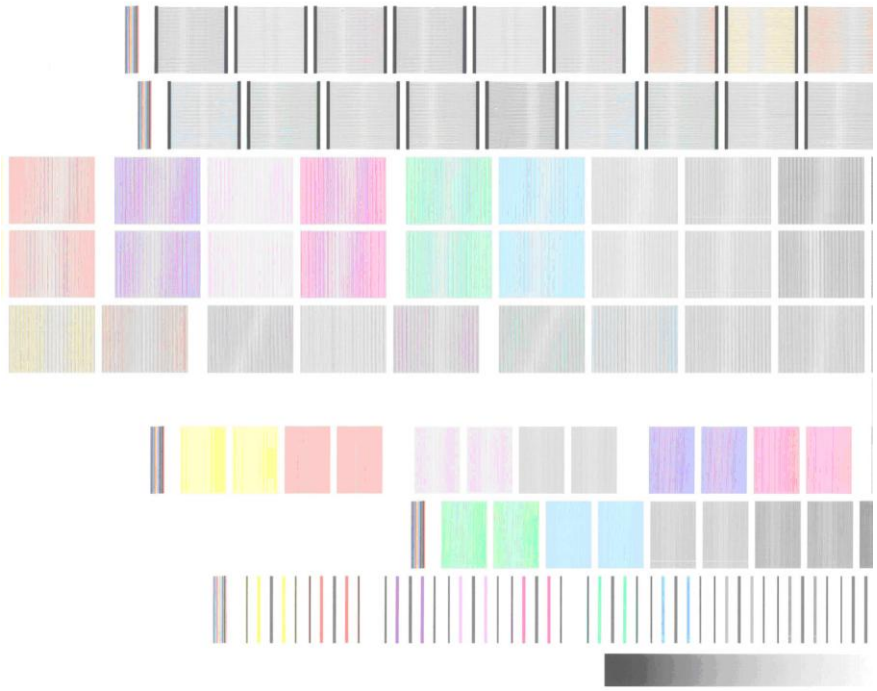
1. If the realignment process is running and the wrong paper is loaded, press the cancel key on the front panel. Do not print if the realignment process has been canceled. You can restart the alignment with the Image Quality Maintenance menu procedure.
2. Load the paper you wish to use,. You can use a roll or cut sheet, however, it must be A3 landscape or larger.
3. Remove and re-insert all the printheads, see Remove a printhead and Insert a printhead. This will start the printhead alignment procedure.
4. Ensure the transparent window closed, as a strong light source near the printer during printhead realignment can affect alignment.
5. The process will take about six minutes. Wait until the front panel display shows the process complete before using the printer.

### Image Quality Maintenance Procedure

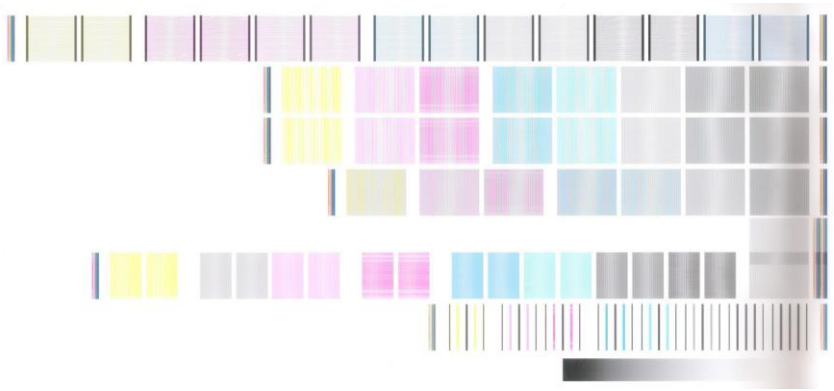
1. Load the paper you wish to use. You can use a roll or cut sheet, however, it must be A3 landscape or larger (420 by 297 mm). Do not use transparent and semi-transparent paper to align the printheads. Photo paper is recommended for the best results; plain, bond and thin coated papers provide acceptable but marginal results.
2. Press the Menu key to return to the main menu and select the Image Quality Maintenance menu icon.
3. Select Align printheads. The printer will check to see if it has enough paper to run the realignment.

4 If the loaded paper is satisfactory, the printer will run the realignment and print a realignment pattern. Ensure the transparent window is closed, as a strong light source near the printer during printhead realignment can affect alignment.

Z3100/Z3100ps/Z3200ps Plot:



Z2100 Plot:



5 The process will take about five minutes. Wait until the front panel display shows the process complete before using the printer.

### Scanning errors during alignment

If the alignment process FAILs, a scanning problems message appears on the front panel. This means that the alignment has not completed successfully. Therefore the printer is not aligned and the alignment should be repeated before printing with good image quality. The problem may be due to:

- The paper used was not valid, repeat the alignment with valid paper.

- Printhead health problems, clean printheads.
- The alignment was done with the transparent window open, repeat the alignment with the window closed.

If the problem persists after using valid paper, cleaning the printheads, and keeping the window closed, there may be a Failure in the scanning system needing reparation or the printheads, although clean, may not work and need to be replaced.

## Ink Cartridge and Printhead Status Messages

### Ink Cartridge Status Messages

| | |
|---|---|
| **OK** | The Ink Cartridge is operating correctly and no action is required. |
| **Missing** | There is no Ink Cartridge present, or it is not properly connected to the printer |
| **Low** | The **Low** message is an early warning sign and it is advisable that new supplies should be obtained of that particular color. The amount of ink remaining in the Ink Cartridge depends on it's capacity, but there is approximately 14% of ink available for the user. |
| **Very Low** | When the **Very Low** message is displayed, overnight printing should not be attempted. Changing the Ink Cartridge is strongly recommended to prevent the printer from stopping halfway through a print. There is approximately 8% of ink available for the user. |
| **Empty** | The printer will stop and will not be able to continue printing until a new Ink Cartridge has been installed. If this occurs halfway through printing an image, you should check the quality of this image, as stopping mid-plot can affect the print. It would be recommended to reprint the image once a new Ink Cartridge has been installed. |
| **Reseat** | You are recommended to remove the Ink Cartridge and then reinsert it. |
| **Replace** | You are recommended to replace the Ink Cartridge with a new Ink Cartridge. |
| **Altered** | There is something unexpected about the Ink Cartridge's status. |
| **Expired** | The Ink Cartridge has passed the expiration date. |

### Printhead status messages

| | |
|---|---|
| **OK** | The Printhead is operating correctly and no action is required. |
| **Missing** | There is no Printhead present, or it is not properly connected to the printer. |
| **Test printhead separately** | You are recommended to test the printheads individually to find the failing printhead. Remove all the printheads and insert them alone one by one, Closing the latch and the carriage cover after every insertion. The front panel display will indicate the failing one showing the reseat or replace message. |

**Reseat** — You are recommended to start the printhead removal process from the front panel, but instead of removing the printhead, simply press the OK key on the front panel.

**Replace** — You are recommended to remove the printhead and then reinsert it; if that fails, clean the electrical connections; if that fails, replace the printhead with a new printhead.

**Replacement incomplete** — A printhead replacement process has not completed successfully, relaunch the replacement process and let it finish completely (it is not needed to change the printheads).

**Remove** — The printhead is not a suitable type for use in printing (for instance, a setup printhead).

### Printhead Error Codes

The following table describes the Printhead Error Codes. Refer to the above descriptions of the status messages for the appropriate action.

| Error Code | Status Name | Status Message | Description | Comments |
|---|---|---|---|---|
| 0 | Working | OK | The printhead is working properly | |
| 1 | Fails Logical V | Replace | The printhead may have a vcc short | |
| 2 | Fails Continuity | Reseat | | Could be caused by bad insertion. Better to reseat the PEN than to reject it. |
| 4 | Shutdown | | Not used | |
| 8 | Fails Vpp | Replace | Suspected vpp ink short | |
| 16 | Temp Extremely High | Replace | Printhead temperature above normal margins | Could be caused by a short in the ink supplies |
| 32 | Temp Extremely Low | Reseat | Printhead temperature below normal margins | Could be caused by bad Vpp continuity |
| 64 | Temp too High | Replace | Printhead temperature above normal margins | Could be caused by a short in the ink supplies |
| 128 | Temp too Low | Reseat | Printhead temperature below normal margins | Could be caused by bad Vpp continuity |
| 256 | Bad Acumen Info | Replace | Critical acumen info outside margins | Printhead has a manufacturing problem |

| Error Code | Status Name | Status Message | Description | Comments |
|---|---|---|---|---|
| 512 | No Pen | Missing | There is no printhead | |
| 1024 | Bad Accumen Access | Reseat or Test Separately | Acumen cannot be accessed | Bad acumen continuity or a short; Cannot identify problem printhead |
| 2048 | Wrong Model | Replace | Wrong printhead inserted | Mechanical lockouts should prevent this. Error is redundant. |
| 4096 | Mismatch | Replace | Wrong color inserted | Mechanical lockouts should prevent this |
| 8192 | CSdata Not Responding | Reseat | CSdata commuication failed | Could be caused by bad insertion |
| 16384 | CSdata Transmit Error | Reseat | CSdata commuication incorrect | Could be caused by bad contact |
| 32768 | Fails Energy Calibration | Reseat | Energy calibration failed | Could be caused by bad contact |
| 65536 | Empty Dummy | OK during Purge | | Requested during purge, otherwise should be removed |
| 131072 | Full Dummy | Remove | | Requested during purge |
| 262144 | End of Life | Warning | Printhead warranty expired | |
| 524288 | Expired | Warning | Printhead has used expired or non-HP ink | |

## Solving Ink Supplies Problems

Most of the problems that you could encounter when working with the ink supplies are solved with guidance from the front panel. A full list of front panel messages are supplied in the User's Guide.

### You Cannot Insert the Ink Cartridge Into the Printer

1. Ensure that you have the correct cartridge number for your printer. Z2100/ Z3100 printers use hp no.70 supplies, while the Z3200 uses hp no70 supplies for all colors except red, which is no.73.
2. Ensure that the Ink Cartridge is the correct color for that slot.

3 Ensure that the Ink Cartridge is the correct orientation, with the color coded label at the top.

**Never clean inside the Ink Cartridge slots as this can cause damage to the Printer.**

### You Cannot Insert the Printhead Into the Printer

1 Ensure that you have the correct cartridge number for your printer. Z2100/ Z3100 printers use hp no.70 supplies, while the Z3200 uses hp no70 supplies for all colors except red, which is no.73.

2 Ensure that the printhead is the correct color for that slot.

3 Ensure that the printhead is in the correct orientation.

4 Ensure that the protective cap is removed from the Printhead.

### The front panel says to reset or replace a printhead

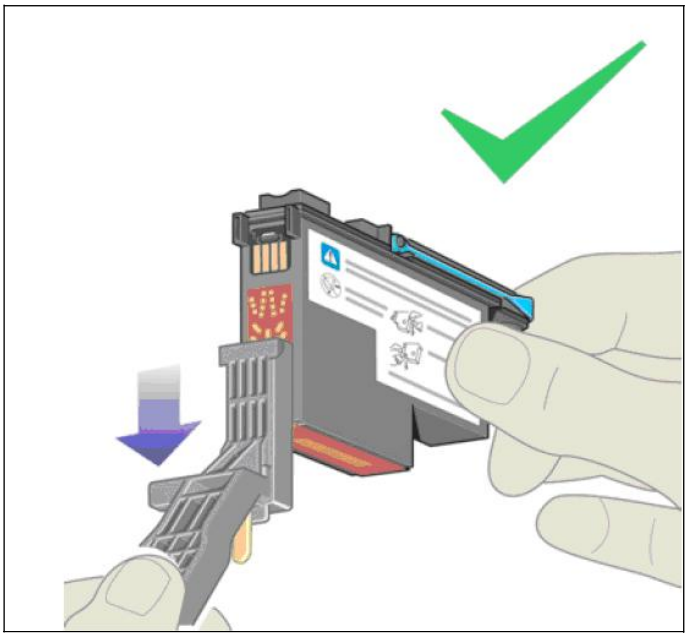
1 From the front panel, turn the power off then on.

2 Check the front panel display message, if it shows the ready message, the printer is ready to print. If the problem remains continue with the next step.

3 Remove the printhead.

4 Clean the electrical connections on the backside of the printhead with a lint free cloth. You can carefully use a mild rubbing alcohol if moisture is needed to remove residue. Do not use water. You can use the Flex Contacts Cleaning Tool.

This is a delicate process and may damage the printhead. Do not touch the nozzles on the bottom side of the printhead, especially not with any alcohol.



5 Reinsert the printhead.

6 Check the front panel display message. If the problem remains, try a new printhead.

## Maintaining and Cleaning the Printheads

### Clean the printheads

As long as the printer is kept turned on, an automatic cleaning is performed periodically. This ensures there is fresh ink in the nozzles and prevents nozzle clogs, which ensures color accuracy.

If you have not already done so, please refer to Horizontal lines across the image (banding) and The Image Diagnostics Print before proceeding.

To clean the printheads, press the Menu key to return to the main menu and select the Image Quality Maintenance menu icon, then Clean Printheads. If you have gone through the Image Quality Diagnostic print process, you know which colors are failing. Select to the pair of printheads which contain the failing colors. If you are not sure which colors to clean, you can also select to clean all printheads.

Cleaning all printheads takes about nine minutes. Cleaning a single pair of printheads takes about six minutes. Cleaning all printheads uses more ink than cleaning a single pair.

If you have cleaned the printheads using the Clean printheads procedure from the front panel and are still experiencing image quality problems, you can try cleaning the printhead nozzles manually using the following procedure.

**This is a delicate process and may damage the printhead. Do not touch the electrical connections on the backside of the printhead.**

You must remove the printhead (see Remove a printhead) and using a cotton swab and a little de-ionized, distilled water, or Flex Contacts Cleaning Tool clean the bottom of the printhead until the residue is removed.

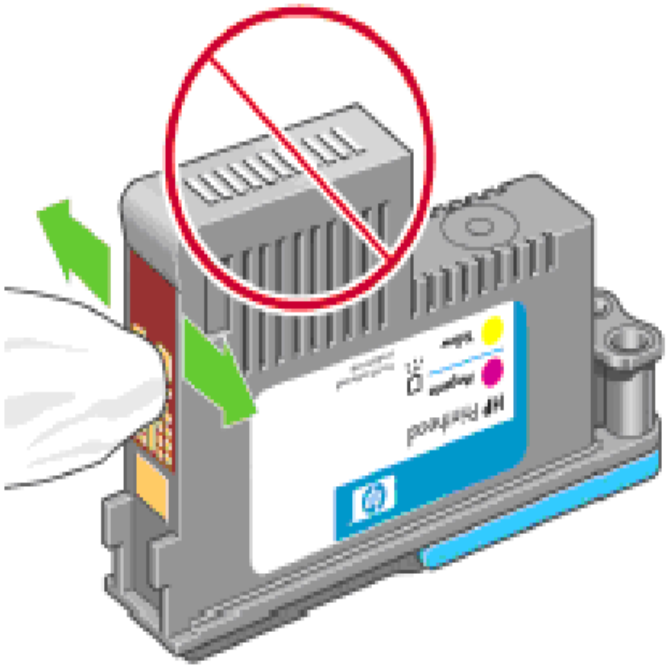
### Flex Contacts Cleaning Tool

**The Flex Contacts Cleaning Tool is part of the Maintenance Tool Kit which can be ordered using Part Number Q5669-60690. All the instructions needed to use the Flex Contacts Cleaning Tool will be packaged with the kit.**

Whenever you replace the Printhead, check the empty slots to see if they need cleaning. In extreme circumstances, when a Printhead is inserted, it is possible that the Printer will not recognize it due to the build-up of ink on the electrical connection between the Printhead and the Carriage Assembly.

The flex contacts cleaning tool is available as a service part for the Z2100/ Z3100 Photo Printer. It contains replacement sponges and an instruction sheet, and should be used for cleaning the electrical interconnects of both the Carriage Assembly and the Printhead.

If the front panel displays the message “Reseat” or “Replace” next to the offending printhead, try cleaning the flex circuits of the Carriage and the Printheads using the Flex Contacts Cleaning Tool.



**Do not touch, wipe or attempt to clean the printhead nozzles. This can damage the printhead and reduce print quality.**

# System Error Codes 2

Introduction 2-2
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System Error Code Brief Descriptions 2-3
System Error Codes - Full Descriptions 2-7

# Introduction

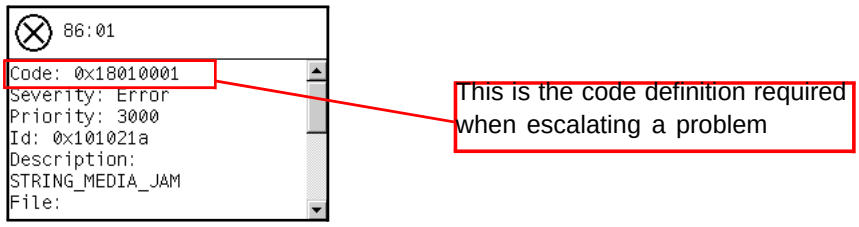
System error codes are hexa-decimal based numbers generally caused by internal system errors. The following pages contain a list of system error codes and their respective descriptions and recommended corrective actions. Only try one recommended action at a time and check if the error code has disappeared.

If you have an error code which is not documented in this Service Manual or you have an error which you cannot resolve, then report the error to the HP Response Center or the nearest HP Support Office. When reporting the error, have the following information ready:

- Model and Serial Number of the printer.
- Which firmware revision the printer is using (See Note below). Check firmware in *Setup Menu / Information Menu / Show Printer Information*.
- The complete error number (See Note below).
- The Service Configuration Print.
- The Current configuration sheet.
- Which software application the customer is using (name, version, etc.).

**When reporting the System Error Code, make sure that you supply the full Internal Error Code and the firmware version. Without this information, HP Support Personnel cannot help you. To view the Internal Error Code, hold the UP key and press the CANCEL key at the same when the System Error.**

**Code is displayed on the Front Panel.**




# Continuable and Non-Continuable Error Codes

Some of the Error Codes are continuable, which means you can press **OK** on the front-panel and continue working with the Printer. Non-Continuable Error Codes do not allow you to continue working with the Printer, in this case power the Printer OFF and ON again and see if the System Error disappears. If the Error Code reappears, then the Printer requires an on-site visit in order to resolve the problem.

**Even though the customer can continue working with a Continuable Error Code, an on-site visit should still be planned to troubleshoot the problem.**

# System Error Code Brief Descriptions

## Reading a System Error Code

System Error Codes explain which component/system is failing and what action should be taken to resolve the problem.

System Error Codes are displayed directly on the front panel (but can also be seen on the Information Page) and have been defined in the format **XX.YZ**. or **XX.n:YZ.m**.

- **XX**: Can be a malfunctioning subsystem or process (2 digits).
- **n**: Subsystem or process Index (if more than one used in the product) - Optional.
  - e.g. Identify the Ink Supply (color and number).
- **Y**: Who should perform the action (1 digit) - (0 for User or1 for Service Engineer).
- **Z**: Action to perform (1 digit).

## System Error Code Table

The following table explains the **XX** part of the System Error Code or Warning:

| Code | Component/System |
|---|---|
| 01.0 | Main PCA/Electronics module |
| 01.1 | Add-on Electronics module (printmech) |
| 01.2 | Print Mech PCA |
| 01.3 | Right Ink Supply Station |
| 02.1 | Carriage PCA |
| 03 | Power supply |
| 06 | Formatter |
| 08 | Formatter, Front panel |
| 11 | Trailing cable |
| 21 | Service station |
| 21.1 | Service station |
| 22.0 | Bongo error BPS0 (ISS Left) |
| 22.1 | Bongo error BPS1 (ISS Left) |
| 22.2 | Bongo error BPS2 (ISS Right) |
| 22.3 | Bongo error BPS3 (ISS Right) |
| 24 | Tube assembly (IDS) |
| 26.n | Ink Cartridge (color = n) |
| 27 | Printhead error |
| 31 | Cutter |

| Code | Component/System |
|---|---|
| 38 | Output Tray |
| 41 | Paper-axis motor |
| 41.1 | Paper-axis motor |
| 42 | Scan-axis motor |
| 44 | Aerosol fan |
| 47 | Star wheel motor |
| 48 | PPS mechanism |
| 51 | Window Sensor |
| 52 | Drop detector |
| 55 | Line sensor |
| 56 | Drive roller analog encoder sensor |
| 58 | Color sensor (ESP) |
| 61 | Error job |
| 62 | PC Interface |
| 63 | Input/output through LAN card |
| 64 | Input/output through USB port |
| 65 | Input/output (not known what port) |
| 66 | Input/output (not known what port) |
| 67 | Input/output through FireWire port |
| 68 | Loss of engine counters tracking |
| 71 | Memory management |
| 71.19 | PrintMech PCA/Formatter |
| 72 | Firmware error |
| 73 | Servo |
| 74 | Firmware upgrade |
| 74.1 | Media Profile Update |
| 75.1 | Preventive Maintenance kit #1 |
| 75.2 | Preventive Maintenance kit #2 |
| 75.3 | Preventive Maintenance kit #3 |
| 76 | Disk Full |
| 77 | Web access application |
| 78 | Borderless |
| 78.1 | Media Settings |
| 79 | Assertion (uncontrolled FW error) |
| 79.1 | Recoverable Firmware Error |
| 81 | Media advance |
| 81.1 | Media advance |
| 84 | Roll Feed |

| Code | Component/System |
|---|---|
| 85 | Media-axis encoder reading |
| 86 | Carriage Movement |
| 87 | Scan-axis encoder reading |
| 93 | Ink Pumping |
| 94 | Color calibration |
| 94.1 | Profiler |
| 95 | Printhead alignment |
| 97 | Paper advance calibration |

## Corrective Actions Table

The following table explains the **YZ** part of the System Error Code or Warning:

| Code | Recovery Action | Response |
|---|---|---|
| 00 | Replace | Possible for customer to perform action |
| 01 | Reseat/Reconnect/Clean/Adjust (manually) | |
| 02 | Calibrate/Adjust (using Automatic Process) | |
| 03 | Power OFF and Restart the Printer | |
| 04 | Upgrade System Firmware | |
| 05 | Upgrade Driver or Computer Software | |
| 06 | Add Accessory | |
| 07 | Escalate | |
| 08 | Send Plot Again | |
| 09 | Wrong Part Installed | |

| Code | Recovery Action | Response |
|---|---|---|
| 10 | Replace | hp qualified personnel assistance required |
| 11 | Reseat/Reconnect/Clean/Adjust (manually) | |
| 12 | Calibrate/Adjust (using Automatic Process) | |
| 13 | Power OFF | |
| 14 | Upgrade System Firmware | |
| 15 | Upgrade Driver or Computer Software | |
| 16 | Add Accessory | |
| 17 | Escalate | |
| 18 | Send Plot Again | |
| 19 | Wrong Part Installed | |

# System Error Codes - Full Descriptions

This sections describes each of the system error codes and warnings that could be encountered while using the printer and provides the remedial action required to solve the problem detected.

**Only replace one component at a time and check if the error has gone before replacing another component. Using this procedure you will be able to determine exactly which component failed.**

**System Error:** **01.0:YZ**

**Problem Description:** Communication with Main PCA failed.

**Corrective Action:** Try the following:

- Switch the Power OFF from the back of the Printer and disconnect the Power cord. Reconnect the power cord and power On the Printer.
- Remove the formatter and reinsert it again. Ensure that it connects properly in the Main PCA connector.
- If the System Error continues, replace the Main PCA ⇒ Page *6-161*.
- If the System Error continues, replace the Formatter ⇒ Page *6-159*.

**System Error:** **01.1:YZ**

**Problem Description:** Error in the Print Mech PCA.

**Corrective Action:** Try the following:

- Switch the Power OFF from the back of the Printer and disconnect the Power cord. Reconnect the power cord and power On the Printer.
- If the System Error continues, replace the Main PCA ⇒ Page *6-161*.
- If the System Error continues, replace the Formatter ⇒ Page *6-159*.

**System Error:** **01.2:YZ**

**Problem Description:** Failure reading acumen chip of an Ink Supply Station.

**Corrective Action:** Try the following:

- Switch the Power OFF from the back of the Printer and disconnect the Power cord. Reconnect the power cord and power On the Printer.
- Check that there are not two cartridges of the same color installed.
- Perform the Ink Delivery System diagnostic test ⇒ Page *3-39*.
  - If the test finds that the ink supply is defective, replace it.
  - If the test does not find any errors, remove all the ink supplies from the ISS and reboot the printer.
- Install the ink cardtriges with the printer booted in normal mode. Use the replacement option available from the Front Panel and install the cartridges one by one. If an error appears after installing a supply, the

last supply you installed is defective. Replace it.

- If the System Error continues, replace the Main PCA ⇒ Page *6-161*.
- If the System Error continues, replace the Left Ink Supply Station⇒ Page *6-147*.
- If the System Error continues, replace the Right Ink Supply Station⇒ Page *6-143*.

**System Error:** **01.3:YZ**

**Problem Description:** Device I2C acumen Right Ink Supply Station failure.

**Corrective Action:** Try the following:

- Switch the Power OFF from the back of the Printer and disconnect the Power cord. Reconnect the power cord and power On the Printer.
- Check that the cables between the Right Ink Supply Station and PrintMech PCA are not damaged and are correctly connected.
- Perform the Ink Delivery System diagnostic test to troubleshoot the problem further ⇒ Page *3-38*.
- If the System Error continues, replace the Right Ink Supply Station Page *6-143*.

**System Error:** **02.1:YZ**

**Problem Description:** Problem with the Carriage PCA.

**Corrective Action:** Try the following:

- Switch the Power OFF from the back of the Printer and disconnect the Power cord. Reconnect the power cord and power On the Printer.
- Check that the Trailing Cable is not damaged.
- Check that the Trailing Cable is correctly connected between the Main PCA and Carriage PCA.
- If the System Error continues, replace the Trailing Cable and Carriage PCA Cover. ⇒ Page *6-92*.
- If the System Error continues, replace the Carriage PCA ⇒ Page *6-138*.
- If the System Error continues, replace the Main PCA. ⇒ Page *6-161*.
- Replace the Carriage Assembly ⇒ Page *6-100*.

**System Error:** **03:YZ**

**Problem Description:** Problem with Power Supply Unit.

**Corrective Action:** Try the following:

- Switch the Power OFF from the back of the Printer and disconnect the Power cord. Reconnect the power cord and power On the Printer.
- Perform the Electronics Module Test Diagnostic to troubleshoot the problem further ⇒ Page *3-22*.
- If the System Error continues, replace the Power Supply Unit (PSU) ⇒ Page *6-161*.

**System Error:** **03.0:10**

**Problem Description:** Battery of Real Time Clock ran down.

**Corrective Action:** Replace the battery:

1. Turn the printer off and unplug the cable. Unplug any network or USB cables.
2. Loosen the screws that attach the formatter to the printer with your fingers, or with the help of a flat screwdriver, and remove the formatter.
3. Locate the round, flat battery in the formatter.
4. Push the battery slightly to one side and then pull it up. A little force may be required.
5. Insert the new battery by pressing it down.
6. Insert the formatter into the printer by pressing it down, and tighten the screws.
7. Reconnect the cables and turn the printer on.

**System Error:** **06:YZ**

**Problem Description:** Failure reading/writing NVM in Hard disk.

**Corrective Action:** Try the following:

- Switch the Power OFF from the back of the Printer and disconnect the Power cord. Reconnect the power cord and power On the Printer.
- If the System Error continues, replace the Formatter ⇒ Page *6-159*.

**System Error:** **08:YZ (or Front Panel is blank)**

**Problem Description:** No comunication between the Front Panel and the Main PCA.

**Corrective Action:** Try the following:

- Switch the Power OFF from the back of the Printer and disconnect the Power cord. Reconnect the power cord and power On the Printer.
- Check that the Front Panel interface cable is not damaged and is correctly connected between the Main PCA and the Front Panel.
- Check that the connections between the Formatter and the Main PCA are not damaged and are correctly connected.
- If the System Error continues, replace the Formatter ⇒ Page *6-159*.
- If the System Error continues, replace the Main PCA ⇒ Page *6-161*.
- If the System Error continues, replace the Front Panel ⇒ Page *6-48*.

**System Error:** **11:YZ**

**Problem Description:** Trailing Cable does not seem to be detected.

**Corrective Action:** Try the following:

- Switch the Power OFF from the back of the Printer and disconnect the

Power cord. Reconnect the power cord and power On the Printer.

- Check that the Trailing Cable is not damaged.
- Check that the Trailing Cable is correctly connected betwen the Main PCA and Carriage PCA and make sure that the connectors in these boards are not damaged.
- If the System Error continues, replace the Trailing Cable ⇒ Page *6-92*.
- If the System Error continues, replace the Main PCA ⇒ Page *6-161*.
- If the System Error continues, replace the Carriage PCA ⇒ Page *6-138*.

**System Error:** **21:YZ**

**Problem Description:** Fail moving Service Station.

**Corrective Action:** Try the following:

- 
- Remove the Right Cover and make sure the cables from the Printmech PCA to the Service Station are connected and are not damaged.
- Make sure that the Service Station path is clear. Remove any visible obstacles (e.g. screws, plastic parts, etc...) restricting the movement of the Service Station.
- Perform the Service Station diagnostic test to troubleshoot the problem further ⇒ Page *3-45*.
- If the System Error continues, replace the Service Station ⇒ Page *6-60*.
- If the System Error continues, replace the PrintMech PCA ⇒ Page *6-71*.

**System Error:** **21.1:YZ**

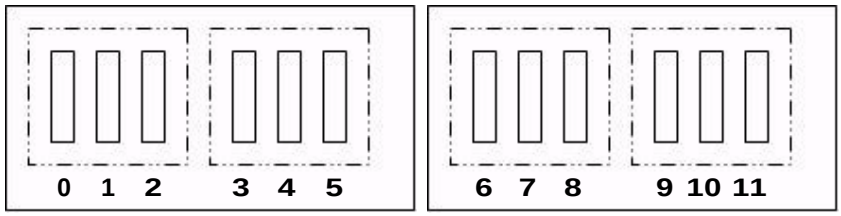
**Problem Description:** Fail moving the Primer Motor of the Service Station.

**Corrective Action:** Try the following:

- Remove the Right Cover and make sure the cables from the Printmech PCA to the Service Station are connected and are not damaged.
- Perform the Service Station diagnostic test to troubleshoot the problem further ⇒ Page *3-45*.
- If the System Error continues, replace the Service Station ⇒ Page *6-60*.
- If the System Error continues, replace the PrintMech PCA ⇒ Page *6-71*.

**Warning:** **2x.n:10**

**Problem Description:** Ink supply error found during IDS diagnostic test. The n represents the ink supply that is failing. The ink supply furthest to the left is always 0, and then they count up from left to right. The following graphic illustrates this for the Z3100/Z3200.




**Left Ink Supplies** **Right Ink Supplies**

**Corrective Action:** Try the following:

- Replace the left or right Ink Supply Station, depending on which supply failed ⇒ Page *6-143* and Page *6-147*.

**System Error:** **22.0:YZ**

**Problem Description:** Left Ink Supply Station error.

**Corrective Action:** Try the following:

- Switch the Power OFF from the back of the Printer and disconnect the Power cord. Reconnect the power cord and power On the Printer.
- Check that the cables between the Left Ink Supply Station and Main PCA the are not damaged and are correctly connected.
- Perform the Ink Delivery System diagnostic test to troubleshoot the problem further ⇒ Page *3-38*.
- If the System Error continues, replace the Left Ink Supply Station ⇒ Page *6-147*.
- If the System Error continues, replace the Main PCA ⇒ Page *6-161*.

**System Error:** **22.1:YZ**

**Problem Description:** Left Ink Supply Station error.

**Corrective Action:** Try the following:

- Switch the Power OFF from the back of the Printer and disconnect the Power cord. Reconnect the power cord and power On the Printer.
- Check that the cables between the Left Ink Supply Station and Main PCA the are not damaged and are correctly connected.
- Perform the Ink Delivery System diagnostic test to troubleshoot the problem further ⇒ Page *3-38*.
- If the System Error continues, replace the Left Ink Supply Station ⇒ Page *6-147*.
- If the System Error continues, replace the Main PCA ⇒ Page *6-161*.

**System Error:** **22.2:YZ**

**Problem Description:** Right Ink Supply Station error.

**Corrective Action:** Try the following:

- Switch the Power OFF from the back of the Printer and disconnect the Power cord. Reconnect the power cord and power On the Printer.
- Check that the cables between the Right Ink Supply Station and PrintMech PCA the are not damaged and are correctly connected.
- Perform the Ink Delivery System diagnostic test to troubleshoot the problem further ⇒ Page *3-38*.
- If the System Error continues, replace the Right Ink Supply Station ⇒ Page *6-147*.
- If the System Error continues, replace the Main PCA ⇒ Page *6-161*.

**System Error:** **22.3:YZ**

**Problem Description:** Right Ink Supply Station error.

**Corrective Action:** Try the following:

- Switch the Power OFF from the back of the Printer and disconnect the Power cord. Reconnect the power cord and power On the Printer.
- Check that the cables between the Right Ink Supply Station and PrintMech PCA the are not damaged and are correctly connected.
- Perform the Ink Delivery System diagnostic test to troubleshoot the problem further ⇒ Page *3-38*.
- If the System Error continues, replace the Right Ink Supply Station ⇒ Page *6-147*.
- If the System Error continues, replace the Main PCA ⇒ Page *6-161*.

**System Error:** **24:YZ**

**Problem Description:** Ink Setup failure (you must bring purgers).

**Corrective Action:** Try the following:

- Switch the Power OFF from the back of the Printer and disconnect the Power cord. Insert the new purgers, reconnect the power cord and power On the Printer.
- Perform the Ink Delivery System diagnostic test in order to check that the bongos (pushers) go up and down to pressurize ink in the tubes and the Out of Ink sensors work properly ⇒ Page *3-39*.
- Try purging the Ink Supply Tubes again once the Printer has been restarted.
- If the diagnostic test does not find any problem, install new cartridges in the printer and try purging the Ink Supply Tubes again. It could be that one of the cartridges is defective.
- If the problem persists, replace the Ink Supply Tubes ⇒ Page *6-151*.
- Replace the Formatter ⇒ Page *6-159*.

**System Error:** **31:01**

**Problem Description:** An error has been detected with the cutter.

**Corrective Action:** Try the following:

- Switch the Power OFF from the back of the Printer and disconnect the Power cord. Reconnect the power cord and power On the Printer.
- Check the Cutter Assembly for blockage or any other obvious problems.
- Replace the Cutter Assembly ⇒ Page *6-43*.

**System Error:** **31:02**

**Problem Description:** An error has been detected with the cutter.

**Corrective Action:** Try the following:

- Switch the Power OFF from the back of the Printer and disconnect the Power cord. Reconnect the power cord and power On the Printer.
- Check the Cutter Assembly for blockage or any other obvious problems.
- Replace the Cutter Assembly ⇒ Page *6-43*.

**System Error:** **31:03**

**Problem Description:** Paper is loaded. While testing the cutter, paper should not be loaded.

**Corrective Action:** Try the following:

- Switch the Power OFF from the back of the Printer and disconnect the Power cord.
- Unload the media.
- Reconnect the power cord and power On the Printer.
-

**System Error:** **41:03**

**Problem Description:** Media-Axis Motor failure (likely due to friction or obstacles in the media path).

**Corrective Action:** Try the following:

- Same as 41:YZ but after testing the issue is repeatable.

**System Error:** **41:YZ**

**Problem Description:** Media-Axis Motor failure (likely due to friction or obstacles in the media path).

**Corrective Action:** Try the following:

- Switch the Power OFF from the back of the Printer and disconnect the Power cord. Reconnect the power cord and power On the Printer.
- Open the Window and check for any visible obstacles restricting the movement of the Media Advance Roller. If there is a wrinkled mass of media inside the paper path, lift the Pinch wheels (using Media Lever) and clear the obstruction.

- Perform the Paper Drive diagnostic test to troubleshoot the problem further ⇒ Page *3-18*.
- If the problem persist check that the Media Advance Drive cable is not damaged and is correctly connected to the Main PCA.
- Replace the Media Advance Drive ⇒ Page *6-180*.
- If the System Error continues, replace the Main PCA ⇒ Page *6-161*.

**System Error:** **42:03**

**Problem Description:** Scan-Axis Motor failure (likely due to obstacles in the scan axis or electrical fault).

**Corrective Action:** Try the following:

- Same as 42:YZ but after testing the issue is repeatable.

**System Error:** **42:YZ**

**Problem Description:** Scan-Axis Motor failure (likely due to friction or obstacles in the media path).

**Corrective Action:** Try the following:

- Switch the Power OFF from the back of the Printer and disconnect the Power cord. Reconnect the power cord and power On the Printer.
- Open the Window and check for any visible obstacles restricting the movement of the Media Advance Roller. If there is a wrinkled mass of media inside the paper path, lift the Pinch wheels (using Media Lever) and clear the obstruction.
- Perform the Scan Axis diagnostic test to troubleshoot the problem further ⇒ Page *3-6*.
- Check that there is no obstacle preventing the Service Station from working.
- Perform the Service Station diagnostic test to troubleshoot the problem further ⇒ Page *3-45*.
- Check that the Scan-Axis Motor cable is not damaged and is correctly connected to the PrintMech PCA.
- Replace the Scan-Axis Motor ⇒ Page *6-116*.
- If the System Error continues, replace the PrintMech PCA ⇒ Page *6-71*.

**System Error:** **44:YZ**

**Problem Description:** Fan Electrical fault, or not connected..

**Corrective Action:** Try the following:

- Switch the Power OFF from the back of the Printer and disconnect the Power cord. Reconnect the power cord and power On the Printer.
- Check that the Aerosol Fan cable is not damaged and is correctly connected to the PrintMech PCA
- Replace the Aerosol Fan Assembly ⇒ Page *6-65*.
- If the System Error continues, replace the PrintMech PCA ⇒ Page *6-71*.

**System Error:** **47:03**

**Problem Description:** Star wheels motor error.

**Corrective Action:** Try the following:

- Same as 47:YZ. The error is continuable, but only if it happens from time to time.

**System Error:** **47:YZ**

**Problem Description:** Star wheels motor error..

**Corrective Action:** Try the following:

- Switch the Power OFF from the back of the Printer and disconnect the Power cord. Reconnect the power cord and power On the Printer.
- Check that the Starwheel Assembly cable is not damaged and is correctly connected to Main PCA.
- Open the Window and check for any visible obstacles restricting the movement of the Starwheel Assembly, then clear the obstruction.
- Perform the Scan Axis Starwheel diagnostic test to troubleshoot the problem further ⇒ Page *3-7*.
- Replace the Starwheel Motor ⇒ Page *6-211*.
- Replace the Starwheel Lifter⇒ Page *6-200* and Page *6-207*.
- If the System Error continues, replace the Main PCA ⇒ Page *6-161*.

**System Error:** **48:YZ**

**Problem Description:** PPS system failure.

**Corrective Action:** Try the following:

- Switch the Power OFF from the back of the Printer and disconnect the Power cord. Reconnect the power cord and power On the Printer.
- Check that the Pen to Paper Space (PPS) Solenoid cable is not damaged and is correctly connected to the PrintMech PCA.
- Perform the Scan Axis PSS diagnostic test to troubleshoot the problem further ⇒ Page *3-9*.
- Make sure the Service Station is correctly installed. Sometimes, if the Service Station is not correctly installed, the front of the Service Station falls down (causing the Service Station to be tilted), and the L-Bracket support does not fit properly. The front of the Service Station should be “UP,” and the L-Bracket should fit well with the Service Station.
- Replace the Pen to Paper Space (PPS) Solenoid ⇒ Page *6-73*.
- If the System Error continues, replace the PrintMech PCA ⇒ Page *6-71*.

**System Error:** **51:YZ**

**Problem Description:** Window Sensor failure.

**Corrective Action:** Try the following:

- Check that the Window Position Sensor cable is not damaged and is correctly connected to the PrintMech PCA.
- Perform the Sensors Test to troubleshoot the problem further ⇒ Page *3-33*.
- Replace the Window Position Sensor ⇒ Page *6-54*.

**System Error:** **52:10**

**Problem Description:** The printer has detected fibers in the Drop Detector.

**Corrective Action:** Try the following:

- Switch the Power OFF from the back of the Printer and disconnect the Power cord. Reconnect the power cord and power On the Printer.
- Check that the Drop Detector cable is not damaged and is correctly connected to the PrintMech PCA.
- Clean the drop detector.
- Check that the Service Station cable is not damaged and is correctly connected to the PrintMech PCA.
- Replace the Drop Detector ⇒ Page *6-64*.
- Reset the Calibration Flag of the Drop Detector ⇒ Page *4-12*.
- If the System Error continues, replace the PrintMech PCA ⇒ Page *6-71*.

**System Error:** **55:YZ**

**Problem Description:** Problem with the Line Sensor (Tetris). The printer has detected a failure to access Line Sensor EEPROM).

**Corrective Action:** Try the following:

- Switch the Power OFF from the back of the Printer and disconnect the Power cord. Reconnect the power cord and power On the Printer.
- Perform the Carriage Test to troubleshoot the problem further ⇒ Page *3-27*
- Check the Line Sensor connections to the Carriage PCA.
- Replace the Line Sensor ⇒ Page *6-128*.
- If the System Error continues, replace the Carriage PCA ⇒ Page *6-138*.

**System Error:** **56:YZ**

**Problem Description:** Drive roller analog encoder sensor fail or calibration failed.

**Corrective Action:** Try the following:

- Switch the Power OFF from the back of the Printer and disconnect the Power cord. Reconnect the power cord and power On the Printer.
- Perform the Media Path Test to troubleshoot the problem further ⇒ Page *3-18*.
- Replace the Encoder Disk and Encoder Sensor ⇒ Page *6-176*.
- If the System Error continues, replace the Main PCA ⇒ Page *6-161*.

**System Error:** **58:YZ**

**Problem Description:** The Color Sensor ESP (spectrophotometer) of the printer is not working well. It could be any of the following problems:

- Problem with the Color Sensor ESP (spectrophotometer).
- Communication problem between the Color Sensor ESP (spectrophotometer) and Carriage PCA.
- The color sensor shutter does not open properly.

**Corrective Action:** Try the following:

- Switch the Power OFF from the back of the Printer and disconnect the Power cord. Reconnect the power cord and power On the Printer.
- Replace the Color Sensor ESP (spectrophotometer) ⇒ Page *6-122*.
- If the problem persists check the internal code error (Press UP and CANCEL while the error is displayed). If the internal error code is **0x0606002** replace the Service Station ⇒ Page *6-60*. If the internal error code is **0x06060003** change the Carriage PCA ⇒ Page *6-138*.

**System Error:** **61:YZ**

**Problem Description:** The file format is incorrect and the Printer cannot process the job.

**Corrective Action:** Try the following:

- Switch the Power OFF from the back of the Printer and disconnect the Power cord. Reconnect the power cord and power On the Printer.
- Check that the driver installed in the customer computer is the one that will work with that printer (i.e if the customer has a Z3100 without an HP-GL/2 upgrade kit, check that the driver installed is the PCL3GUi as other drivers will not work).
- Check the graphic language setting of the Printer (Refer to the User's Guide).
- Resend the file to the printer.
- Check that the Printer has the latest Firmware version. If not, update the Firmware to the latest version.
- The PostScript™ fonts are missing. Upgrading the Firmware will re-install the fonts.
- The file cannot be printed because it is password protected. Resend the file without password protection.

**System Error:** **63:YZ**

**Problem Description:** Input/Output problem through the network interface of the Formatter.

**Corrective Action:** Try the following:

- Switch the Power OFF from the back of the Printer and disconnect the Power cord. Reconnect the power cord and power On the Printer.
- Check that the Network cable is correctly connected to the Formatter.
- Check that the Printer has the latest Firmware version. If not, update the Firmware to the latest version.

- If the System Error continues, replace the Formatter ⇒ Page *6-159*.

**System Error:** **64:YZ**

**Problem Description:** Input/Output problem through the USB Port.

**Corrective Action:** Try the following:

- Switch the Power OFF from the back of the Printer and disconnect the Power cord. Reconnect the power cord and power On the Printer.
- Check that the USB cable is correctly connected to the Printer.
- Check that the Printer has the latest Firmware version. If not, update the Firmware to the latest version.
- If the System Error continues, replace the Formatter ⇒ Page *6-159*.

**System Error:** **65:YZ**

**Problem Description:** Memory Driver Internal I/O error, I/O Socket Manager Internal I/O error.

**Corrective Action:** Try the following:

- Switch the Power OFF from the back of the Printer and disconnect the Power cord. Reconnect the power cord and power On the Printer.
- Check that the unknown port cable is correctly connected to the Printer.
- Check that the Printer has the latest Firmware version. If not, update the Firmware to the latest version.
- If the System Error continues, replace the Formatter ⇒ Page *6-159*.

**System Error:** **68:YZ**

**Problem Description:** Loss of engine counters tracking.

**Corrective Action:** Try the following:

- Reboot the printer. The printer will continue to function correctly, but the life counters will not continue counting until you restart the printer.

**System Error:** **71:YZ**

**Problem Description:** Out of memory failure.

**Corrective Action:** Try the following:

- It is recommended that you remove any unnecessary files from the Hard Disk Drive of the Formatter using the Web Server.
- If there seems to be a problem with the HP-GL/2 driver, try the **Send Job as bitmap** option in the driver
- Reduce the resolution of your image or the print quality in your driver.

**System Error:** **71:19**

**Problem Description:** Default Serial Number found in the main and backup NVM. It seems that both the Print Mech PCA and Hard Disk Drive have been replaced together.

**Corrective Action:** Try the following:

- Perform the “Error 71:19 Recovery” Service Utility ⇒ Page *3-55*.

**You MUST NEVER replace both the Formatter and the PrintMech PCA at the same time. If both parts need to be replaced, you MUST first replace one part and then power ON the Printer until it completely initializes. Then you can power OFF the Printer and replace the other part.**

**System Error:** **72:YZ**

**Problem Description:** A service calibration must be performed. Check the internal error code to see which calibration must be performed. To check the internal error code, press UP and CANCEL together while the error code is displayed.

**Corrective Action:** Check the internal error code:

- 0x07090001 (gain). Perform the Line Sensor Calibration ⇒ Page *4-15*.
- 0x07090002 (LS2K). Perform the Line Sensor Calibration ⇒ Page *4-15*.
- 0x07090003 (DD). Perform the Drop Detector Calibration ⇒ Page *4-12*.
- 0x07090004 (Adv). Perform the Paper Advance Calibration ⇒ Page *4-6*.
- 0x07090005 (Alig). Perform the Printhead Alignment Calibration ⇒ Page *1-66*.
- 0x07090007 (CLC). Perform the Color Sensor Calibration ⇒ Page *4-18*.
- 0x07090008 (Analog Encoder). Perform the Paper Advance Calibration ⇒ Page *4-6*.

**System Error:** **74:YZ**

**Problem Description:** Error uploading firmware update file.

**Corrective Action:** Try the following:

- Switch the Power OFF from the back of the Printer and disconnect the Power cord. Reconnect the power cord and power On the Printer.
- Make sure the connection between the computer and the printer is functioning properly.
- Try to update the Firmware again.
- If available, try another connection method to do the upgrade or a different computer/operating system.

**System Error:** **74.1:YZ**

**Problem Description:** Error uploading media profile update file.

**Corrective Action:** Try the following:

- Switch the Power OFF from the back of the Printer and disconnect the

Power cord. Reconnect the power cord and power On the Printer.

- Make sure the connection between the computer and the printer is functioning properly.
- Try to upload the media profile update file again.
- If available, try another connection method to do the upgrade or a different computer/operating system.

**System Error:** **75.21:YZ**

**Problem Description:** The spittoons (Left Spittoon, Service Station) have reached 80% capacity.

**Corrective Action:** Try the following:

- Use Preventive Maintenance Kit #2 to replace the Left Spitton and Service Station.

**System Error:** **75.22:YZ**

**Problem Description:** The spittoons (Left Spittoon, Service Station) are full.

**Corrective Action:** Try the following:

- Use Preventive Maintenance Kit #2 to replace the Left Spitton and Service Station.

**System Error:** **76:YZ**

**Problem Description:** Hard disk drive is full.

**Corrective Action:** Try the following:

- Remove any unnecessary files from the hard disk using the web server.

**System Error:** **77:YZ**

**Problem Description:** Web access application. The web server is not functioning correctly.

**Corrective Action:** Try the following:

- Switch the Power OFF from the back of the Printer and disconnect the Power cord. Reconnect the power cord and power On the Printer.
- Check that the Printer has the latest Firmware version. If not, update the Firmware to the latest version.

**System Error:** **78:08**

**Problem Description:** The job received can not be printed without borders on this paper.

**Corrective Action:** Try the following:

- Use a paper that supports borderless printing.
- This system error code does NOT require service help. It should be resolved by the customer.

**System Error:** **78.1:YZ**

**Problem Description:** Media settings area missing in media settings file.

**Corrective Action:** Try the following:

- Switch the Power OFF from the back of the Printer and disconnect the Power cord. Reconnect the power cord and power On the Printer.
- Check that the Printer has the latest Firmware version. If not, update the Firmware to the latest version.
- Update the OMES of the paper type that is failing.

**System Error:** **79:YZ**

**Problem Description:** Generic Firmware error.

**Corrective Action:** Try the following:

- Switch the Power OFF from the back of the Printer and disconnect the Power cord. Reconnect the power cord and power On the Printer.
- Check that the Printer has the latest Firmware version. If not, update the Firmware to the latest version.

**System Error:** **79.1:YZ**

**Problem Description:** Recoverable firmware error that does not stop the printing process.

**Corrective Action:** Try the following:

- Switch the Power OFF from the back of the Printer and disconnect the Power cord. Reconnect the power cord and power On the Printer.
- Check that the Printer has the latest Firmware version. If not, update the Firmware to the latest version.

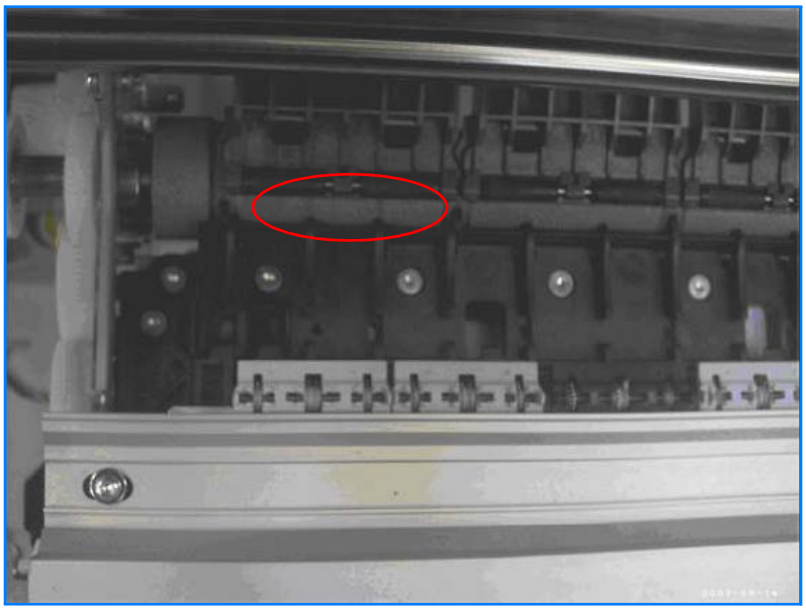
**System Error:** **81:YZ**

**Initial checks:** This error can occur because the printer has been dropped during transportation, causing structural damage. Before continuing with the 81:YZ troubleshooting, first look for structural damage.

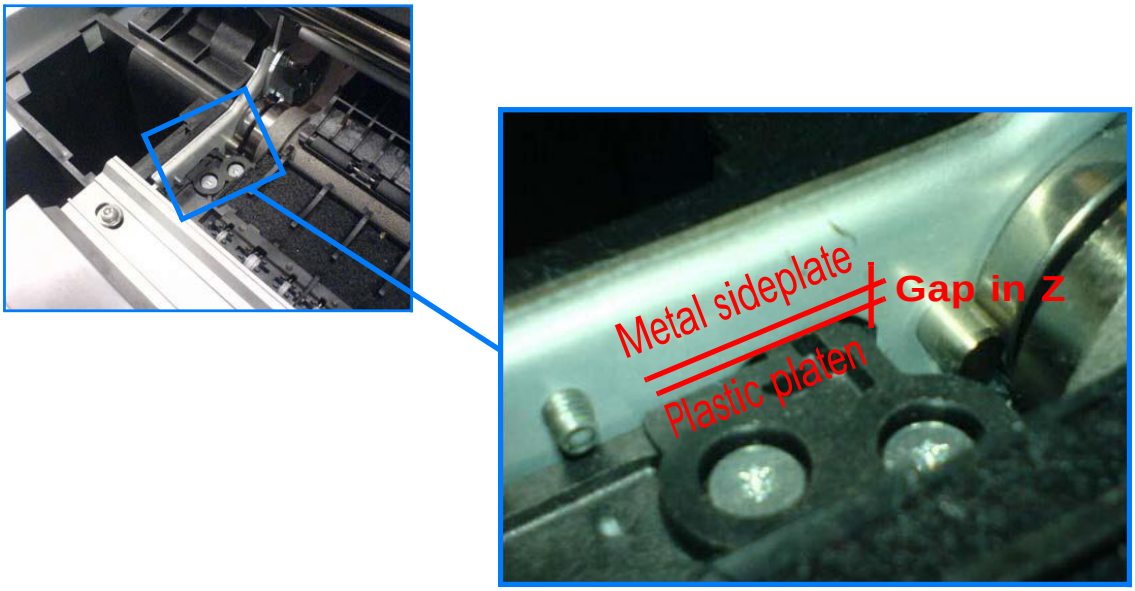
To identify the structural damage, look for the following three things:

- Consistent 81:YZ error codes.
- Platen fingers rubbing on the roller surface, leaving black marks on the

roller.



- A gap on the platen beam. If there's any gap in Z (vertical direction) between the plastic feature of the platen and the metal side plate, then the chassis is damaged and the unit cannot be repaired.




**Problem Description:** Problem with paper advance. This source of error could come from an error in any of the following systems: paper motor, disk encoder, cables or main electronics.

**Corrective Action:** Try the following:

- Open the Window and check for any visible obstacles restricting the movement of the Drive Roller. If there is a wrinkled mass of media inside the paper path, lift the Pinchwheels (using the Media Lever) and clear the obstruction.

- Perform the Media Drive diagnostic test to troubleshoot the problem further ⇒ Page *3-18*.
- Check the connections on the Main PCA; the Media Advance Drive is connected to the connector labeled Paper Motor.
- Adjust the encoder disc and motor mount configuration ⇒ See the installation instructions on Page *6-180*.
- If the System Error continues, replace the Media Advance Transmission ⇒ Page *6-180*.

**System Error:** **85:YZ**

**Problem Description:** Problem finding the Drive Roller zero.

**Corrective Action:** Try the following:

- Check that the Media Advance Drive is connected properly to the Main PCA and is not damaged. The cable is labeled “Paper Motor.”
- Perform the Media Drive diagnostic test to troubleshoot the problem further ⇒ Page *3-18*.
- If the System Error continues, replace the Encoder Disk and Encoder Sensor ⇒ Page *6-176*.
- If the System Error continues, replace the Main PCA ⇒ Page *6-161*.

**System Error:** **86:01**

**Problem Description:** Problem moving the carriage, most likely due to a paper jam.

**Corrective Action:** Try the following:

- Switch the Power OFF from the back of the Printer and disconnect the Power cord. Reconnect the power cord and power On the Printer.
- Open the Window and check for any visible obstacles restricting the movement of the carriage. If there is a wrinkled mass of media inside the paper path, lift the Pinch wheels (using the Media Lever) and clear the obstruction.
- If there is no paper jam or obstacle blocking the carriage movement perform the following:
  - Clean the encoder strip.
  - Check the belt assembly.
  - All cables and connections between the Carriag PCA, Scan Axis Motor, and Main PCA.
  - Oil the carriage rails.
- Perform the Scan Axis Diagnostic Test ⇒ Page *3-6*.
- If the diagnostic test does not find any specific error, replace the Carriage Assembly ⇒ Page *6-100*.
- Replace the Belt Assembly ⇒ Page *6-115*.
- Replace the Scan Axis Motor ⇒ Page *6-116*.
- Replace the Main PCA ⇒ Page *6-161*.

**System Error:** **87:YZ**

**Problem Description:** Problem finding the Scan-axis encoder reading.

**Corrective Action:** Try the following:

- Upgrade the firmware.
- Clean the Encoder Strip.
- Replace the Encoder Strip ⇒ Page *6-91*.
- Replace the Carriage PCA ⇒ Page *6-138*.
- Replace the Trailing Cables ⇒ Page *6-92*.

**System Error:** **93:YZ**

**Problem Description:** Unable to pressurize the Ink Delivery System. The ISS Motor does not move as expected.

**Corrective Action:** Try the following:

- Switch the Power OFF from the back of the Printer and disconnect the Power cord. Reconnect the power cord and power On the Printer.
- Perform the Ink Delivery System diagnostic test to further troubleshoot the problem. ⇒ Page *3-38*.
- Replace the Left or Right Ink Supply Stations, depending on the results of the diagnostic test ⇒ Page *6-143* and Page *6-147*.
- If the problems persist after replacing the appropriate ink supply station (right or left), replace the Main PCA if you have problems with the left side. Replace the Printmech PCA if you have problems with the right side.

**System Error:** **94:YZ**

**Problem Description:** Color calibration Error.

**Corrective Action:** Try the following:

- Perform the Color Sensor ESP (spectrophotometer) calibration. You must use glossy paper for this calibration.
- If the System Error continues, replace the Color Sensor ESP (spectrophotometer) ⇒ Page *6-122*.
- If the System Error continues, replace the Carriage PCA ⇒ Page *6-138*.
- If the System Error continues, replace the Formatter ⇒ Page *6-159*.